

THE
MEDICAL JOURNAL
OF AUSTRALIA

(With which "The Australasian Medical Gazette," and "The Australian Medical Journal" are incorporated.)

The Journal of the Australian Branches of the British Medical Association

VOL. I.—8TH YEAR—NO. 6. SYDNEY: SATURDAY, FEBRUARY 5, 1921.

PRICE 6D.

Surgical Instruments

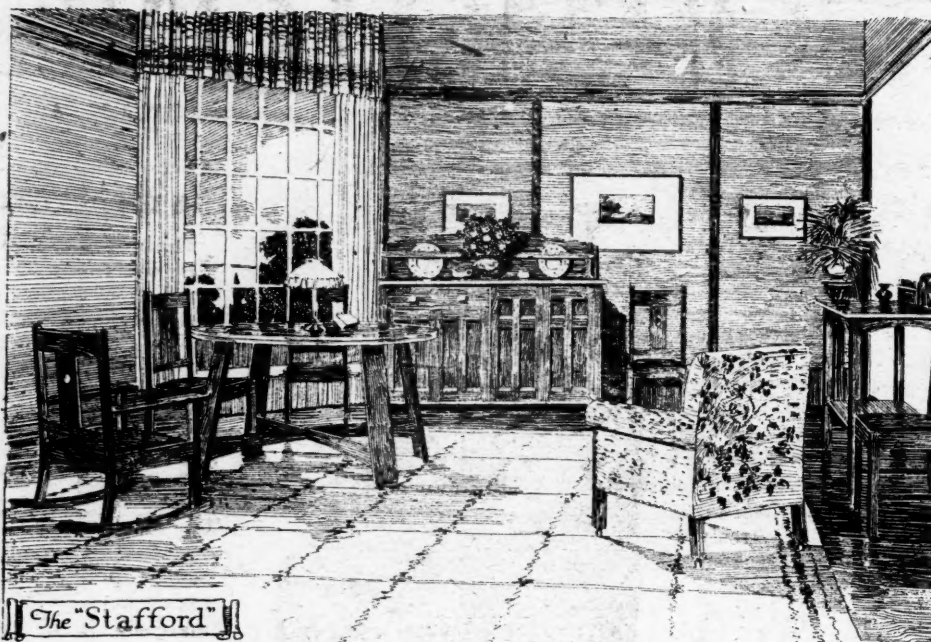
We are pleased to announce that good general stocks of our Surgical Instruments have arrived and that regular supplies are now coming forward. Members of the Profession are cordially invited to visit our Show Rooms.

Allen & Hanburys (Australasia) Ltd.

Instrument Makers to H.M. Army and H.M. Navy

AUSTRALASIAN BRANCH:

B.M.A. Building : Elizabeth St., Sydney



The "STAFFORD" SUITE

The "Stafford" Suite is a splendid example of these two virtues: substantial construction and moderate cost. Both make a direct appeal. Yet the whole scheme is one of refinement and pleasing ideas.

A solution of the problem of the simple, efficient, inexpensive furnishing of a small Living Room in Cottage or Flat.

The Suite is composed of---

5 ft. SIDEBOARD, divided drawer for Cutlery and Silver.

3 ft. WAGGON

4 ft. CIRCULAR TABLE

6 DINNER CHAIRS, and

2 CARVING CHAIRS, all Rush Seated

IN MAPLE OR OAK.
Our own Factory make

£40/-/-

BEARD WATSON & CO. LTD.
GEORGE STREET, SYDNEY

THE MEDICAL JOURNAL OF AUSTRALIA.

VOL. I.—8TH YEAR.

SYDNEY: SATURDAY, FEBRUARY 5, 1921.

No. 6.

THE SURGICAL PROBLEMS OF THE STOMACH AND DUODENUM.¹

By H. B. Devine, M.S. (Melb.),

Honorary Surgeon to In-Patients, St. Vincent's Hospital, Melbourne.

In this paper it is my intention to bring before you the problems and difficulties that I have had to deal with in my gastric surgery.

PROBLEM NO. 1: THE ÆTIOLOGY OF CHRONIC ULCER.

The following schema represents, in my experience, the most reasonable explanation of the cause of chronic ulcer; it is also the best working theory. The principles involved in this have guided me in many of the methods of treatment which are reported in this paper.

Ætiology of Chronic Ulcer.

Chronic ulcer is the pathological condition which results when an acute ulcer is prevented from healing by certain conditions peculiar to the stomach itself and by other conditions, such as secondary infections, which may affect a wound in any part of the body.

Acute ulcer is caused by:

(a) Local lowering of resistance:

- (1) Blood vessel germ infarct (systemic infection) causing partial devitalization.
- (2) Infection of lymph patches on lesser curvature; lymph tissue has low resistance (intra-gastric infection).
- (3) Local infection of mucous membrane (intra-gastric).
- (4) Injury to mucous membrane (fish-bone, heat, etc.).

(b) General lowering of resistance:

- (1) Anæmia and other blood changes.
- (2) Cirrhosis and metabolic changes.
- (3) General causes of depression of resistance.

(c) The digestive action of hydrochloric acid and pepsin on these tissues, which are poor in antibodies.

This ulcer is prevented from healing by:

- (a) Secondary infection of the ulcer.
- (b) Peristaltic movement.
- (c) The irritation of food.
- (d) Excess of HCl, which causes pyloric spasm and hyperperistalsis.

This results in the chronic ulcer, with:

- (a) Death of the highly specialized cells, which are resistant to digestive action.
- (b) Production of areas of fibrosis, with low resistance to digestive action.
- (c) Inflammatory infiltration, rigidity and therefore sensitiveness to food, peristalsis and tension, which converts the painless acute "medical ulcer" into the painful chronic "surgical ulcer."

Can any of these causes be remedied by the surgeon at the time of operation?

- (a) As a rule, the local and general loss of resistance and the focal infections which have been the cause of the peptic ulcer, have naturally disappeared or been cleared up by the physician; some may still remain and must be treated.
- (b) Extra-gastric disease, such as appendix, gall bladder affections, etc., which are potent causes of hydrochloridria, must be sought for and remedied.
- (c) The ulcer and the devitalized tissue which surrounds it, must be removed. This devitalized tissue is deficient in the specialized cells, which are rich in anti-digestive bodies and it would therefore be a weak spot if left and predispose to recurrence of ulcer if any depression of resistance occurred.

The secondary infection of the ulcer can be combated by rest, diet and the antiseptic action of bismuth. (Notice the relief of pain occasionally of a chronic ulcer after treatment, although the ulcer may be found to be still unhealed.)

PROBLEM NO. 2: DIAGNOSIS.

To Distinguish Organic From Inorganic Stomach Disease.

Out of about five hundred non-malignant stomach histories which I have carefully recorded, only about one hundred showed definite organic disease, as proved by X-ray pictures, operation and the subsequent history. Those were patients who came to me as a surgeon. A still larger proportion of inorganic disease will occur in the practice of a physician. It is small wonder, then, that the surgeon finds that one of his greatest problems is to distinguish from cases that may be loosely referred to him, those that he may benefit by operation. The fact that the vast bulk of apparent stomach disease is functional or reflex is not generally recognized. Extrinsic disease simulating a stomach lesion can generally be cured by the operation; its elimination is therefore not so important.

An exploratory operation for any of the many forms of neuroses of the stomach, which are so easily confused with organic disease, will be a misfortune. The patient will be constantly reminded by the persistence, perhaps exacerbation, of the symptoms that a useless, perhaps harmful, operation has been performed.

Still worse will be a gastro-intestinal anastomosis, even in the presence of an organic lesion, unless it is clear that there is no associated gastric neurosis, gastroptosis or duodenal dilatation.

How is the surgeon to select his cases? I find the test meal worse than useless; it has misled me at a critical point in the surgical consideration. Two methods stand out:

- (1) A careful study of the clinical history, with the signs and symptoms in the clinical picture viewed in their proper perspective (clinical diagnosis).

¹ Read at the Australasian Medical Congress, Brisbane, 1920 (Section of Surgery).

- (2) A skiagraphic diagnosis made by an expert, who is at once a physiologist, a pathologist and a physician and who has translated this knowledge into terms of shadows (X-ray diagnosis).

It is a queer attitude of mind that in these modern days the former should be so often neglected for more fanciful and scientific methods. I have seen patients pronounced healthy because a test meal and the skiagram were negative, whereas a careful abdominal examination would have revealed a tumour more or less obvious.

Vomiting and hæmatemesis may be features in the syndrome of chronic gastric ulcer, but when the main symptom is vomiting or hæmatemesis, the ulcer which it is the custom to diagnose, is never found, but rather a neurosis, a cirrhosis, a gastroparesis, etc.. Acute ulcer—the province of the physician and not the surgeon—gives hæmatemesis and vomiting without pain, hence the confusion. But the majority of cases diagnosed as acute ulcer are really due to the diseases just indicated.

Method No. 1: Clinical Diagnosis.

The constant symptomatic features in the diagnosis of the cases hereafter reported were:

- (1) Pain, which was:
 - (a) Bad and consistently present generally about the same time after meals.
 - (b) Periodic, the period being generally a few months.
 - (c) Always increased by certain diet and relieved by other diet, vomiting or alkalis.
- (2) Vomiting and hæmatemesis were not constant features, although often present.
- (3) Very little loss, even perhaps increase of weight and appetite, notwithstanding the acute symptoms and length of history.
- (4) In a group of cases pain was associated with nutritional disturbances and vomiting. Here the ulcer was associated with secondary effects, pyloric stenosis or hour-glass distortion.

Method No. 2: X-Ray Diagnosis.

I have no hesitation in saying that this method is the most valuable. No operation should be done on the stomach without a careful X-ray examination having been first made, at which the surgeon should be present. An intimate knowledge of this shadow pathology is essential to the surgeon who would specialize in gastric surgery, for he alone will be able to balance and co-ordinate the relative values of clinical and X-ray findings and thus obtain their full value in determining the diagnosis and kind of operation indicated. The latter may depend on factors, such as tone of the stomach, the emptying time, etc., information which cannot be obtained at operation.

Experience of the Surgeon in X-Ray Reports: A Plea for Team Work.

The signs of the "surgical stomach" are generally present; but it is not reasonable to expect that they will always be recognized by the X-ray specialist. The X-ray specialist does not often see his patients operated upon and the surgeon rarely takes the trouble

to report his results to the radiographer. This want of co-ordination and team work (which should be easily remedied) takes greatly from the value of X-ray evidence and leads to serious mistakes. For instance, a patient (Case 48) was operated on by a surgeon for supposed malignant disease. A moderately large tumour of the stomach was found; this could not be removed and was diagnosed as carcinoma. A palliative posterior gastro-enterostomy was performed. Subsequently the patient became worse and exceedingly ill, cachectic and wasted and was in great pain. Having had his disease labelled "malignant," he sought relief in further medical aid. Radiographers also diagnosed carcinoma. Dr. Stawell, observing the fact that alkali slightly relieved his "food pain," queried the malignant diagnosis. The X-ray plate of the stomach on which the diagnosis of malignant disease had been made, was reviewed. Figure I. is a sketch. "B" is a definite *plus* "filling defect" or

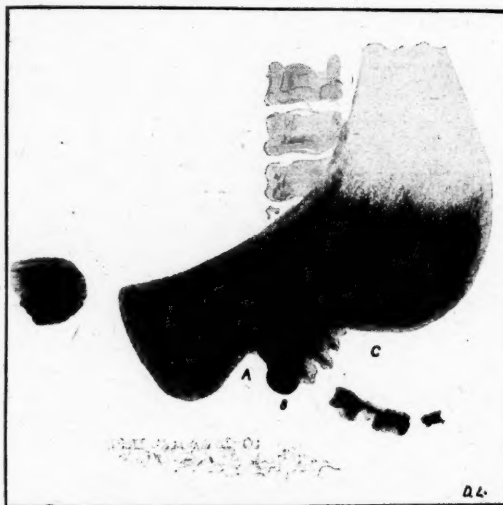


FIGURE I.

- (a) Spasm of circular muscle.
- (b) Plus filling defect of ulcer.
- (c) Gastro-enterostomy stoma.

"niche" of the stomach, indicating ulcer. Its unusual situation suggested a posterior wall site. Ulcer on a neoplastic base would give a *minus* "filling defect." The indentation "A" was supposed to have been the "filling defect" of a neoplasm. It was really caused by a spasm of the circular muscle. The edges would have been irregular and indistinct if it had been due to a malignant growth. The association of this spasm of the circular muscle with the *plus* "filling defect" and the correspondence of the latter to a very local and very deep tender spot confirmed the diagnosis of ulcer. In this case it was possible to make a diagnosis of ulcer from the plate, even though the surgeon who had operated and seen the stomach had diagnosed carcinoma. The patient was re-opened and a very large ulcer, with tumour formation, imbedded in the pancreas, was removed. This may serve to show how momentous an X-ray diagnosis may be to an unfortunate patient. We must not forget that the layman,

impressed by the marvel of the X-ray diagnosis, takes it as final. Many positive X-ray diagnoses of ulcer of the stomach, based on supposed "niches," delayed emptying time, tender spots or hour-glass shapes, have revealed nothing.

I rarely find the innumerable ileal kinks of radiographers. I think these are really seen on the screen, but must be due to either spasm or incompetence of the ileo-caecal valve. I find early carcinoma of the stomach occasionally, with negative X-ray diagnosis, and I have failed to find anything several times where a definite X-ray diagnosis of carcinoma has been made. The negative radiographic diagnosis of the former may be exceedingly difficult; but in the latter there obviously was not nearly sufficient evidence on which to give a positive diagnosis. I find myself in my own work, taught by bitter experience, more and more relying on big, unassailable observations. I have had to learn, first, to recognize the signs when I see them; second, to know those which I can trust. The comparison of X-ray and operation findings is often humiliating, but instructive. I have been induced to give my experience in this because I have been repeatedly told by surgeons and physicians that their X-ray experience has been unsatisfactory. Much more help would be obtained from X-ray diagnosis if the physician or surgeon always supplied a full history or attended at the X-ray examination and possessed the knowledge to enable him to study the phenomena in conjunction with the radiographer.

X-Ray Signs Which Were Proved Reliable by Operation in Eighty-Two Cases.

(1) *Direct Evidence.*—The ulcer "niche" was actually seen in twenty-five cases, in association with either:

- (a) an air bubble; or
- (b) a small crescent, seen when the stomach was empty; or
- (c) fixed hour-glass spasm; or
- (d) a tender spot corresponding to the ulcer; or
- (e) spasm of circular muscle just above the ulcer; or
- (f) the ulcer-bearing area fixed by adhesions (nine cases).

(2) *Indirect Evidence.*—Pyloric obstruction.

- (a) *Early Stage.*—This was generally due to pyloric spasm. To determine whether it was present it was necessary to estimate:

- (i.) the size of stomach,
- (ii.) the depth of peristaltic wave and
- (iii.) the emptying time

in their relationship to one another. A ten-hour emptying time, a dilated stomach and atonic muscle showed at operation no pyloric stenosis, whereas a seven-hour emptying time, very deep peristaltic waves and an undilated stomach showed an ulcer on the pyloric muscle. Evidence of minor degrees of pyloric stenosis could not always be taken as definite evidence of ulcer.

- (b) *Late Stage.*—Organic pyloric stenosis was seen in eighteen cases and was, as a rule, obvious. The interest here centred on the examination of the pre-pyloric portion of

stomach for a filling defect in order to distinguish the stenosis caused by ulcer from that caused by a scirrhus.

- (c) *Hour-Glass.*—(1) Narrow and probably spasmodic. This was often associated with a tender spot. Some diagnoses of ulcer made on this were not confirmed by operation. (2) Broad hour-glass, (organic) was sometimes associated with a tender spot, often with a visible old ulcer.
- (d) *"Canalization."*—The food was held up above an ulcer for a variable interval, giving the appearance of a champagne glass. This was most suggestive, but not always reliable.

Difficulty of Diagnosing Duodenal Ulcer by Radiography.

The diagnosis of a duodenal ulcer by the aid of the X-ray screen examination was most difficult. The alterations in emptying time were only suggestive. I have only on a few occasions seen an ulcer "niche" and this coincided with a tender spot. In two cases there was marked duodenal stenosis. I cannot make a reliable diagnosis on an altered duodenal cap and when I see some of the ulcers at operation they are so small that I wonder how they could have altered the shape of the cap. I feel that a certain diagnosis is difficult and only likely to be obtained in well established ulcers with very powerful apparatus and instantaneous photographs of the duodenal cap.

PROBLEM NO. 3: ULCER WAS DIAGNOSED AND OPERATION FAILED TO CONFIRM DIAGNOSIS.

A patient may present the clinical symptoms and signs of chronic gastric or duodenal ulcer and there may be some X-ray confirmation of this and yet at operation no ulcer may be obvious.

A.—Hidden Ulcer.

Is it possible to overlook an ulcer at the operation? In one case there was a very typical clinical picture of ulcer. At the operation the stomach was thoroughly examined, was held up to the light and explored with the finger; nothing was found. The symptoms persisted and became worse; three years later I re-operated and found a large gastric ulcer on the lesser curvature. There must have been at the first operation a small ulcer on the lesser curvature, protected from palpation and screened from view by the gastro-hepatic omentum. (See Figure II.)

In Case 30, an ulcer having been diagnosed by X-ray examination, nothing could be discovered at operation; but the pyloric muscle seemed rather inelastic. The pylorus was opened and a narrow ulcer was discovered, which occupied the whole length of the posterior segment of the pyloric muscle. It was quite impossible to have felt this from outside the stomach or to have detected it by a finger introduced through an opening in the stomach.

In Case 35 the patient had been operated on for gastric ulcer symptoms by a very good surgeon; no ulcer was found. The patient kept coming into hospital for big hæmatemeses. The condition was diagnosed as cirrhosis, as the patient was an "alcoholic." Review of the case suggested, and X-ray examination showed, an ulcer, which was removed three years after first operation.

In two other cases which came under my notice, chronic ulcer had not been detected by an external examination of the stomach. Ulcers of the cardia are easily missed. A good way is to examine the interior

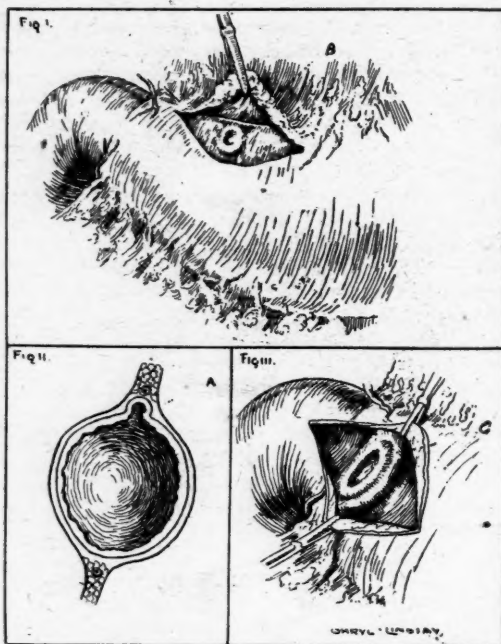


FIGURE II.

Hidden Ulcer.

A and B—Small ulcer hidden under the gastro-hepatic omentum.
C—Ulcer on posterior segment of pyloric muscle.

of the stomach through an opening with a modified gastroscope. Where there is much doubt, I have not hesitated to evert sections of the mucous membrane of the dry stomach through a moderately large gastrotomy. I have always held that if an ulcer could not be detected by external examination of the stomach, it was a soft and "medical" ulcer and of no importance to the surgeon. I have had to change that view. I have always had an uneasy feeling, where nothing has been discovered at a gastric operation for ulcer, that I might have missed a small, sub-acute or chronic ulcer almost healed and failed to cut short by a few strokes of the knife one of those long, painful stomach histories. It has been done many times; therefore, I regard this aspect as important.

B.—Duodenal Ileus.

If no ulcer be found, is there any other cause in the stomach or duodenum for these symptoms which can be surgically remedied at the time of operation? For years I have noticed that when patients have been operated on for duodenal ulcer symptoms and no ulcer found, often a very dilated duodenum (duodenal ileus) would be noticed, which suggested some duodenal obstruction. I want to draw your attention to this later in the paper and also to an operation which I have done in three of these cases with good results.

C.—Extrinsic Disease.

In the absence of the above-mentioned lesions, a thorough investigation is made for extra-gastric disease.

D.—Fibrous or Spastic Pyloric Muscle.

When nothing has been found in a case of painful indigestion, the symptoms can often be relieved by resecting some of the pyloric muscle (a modified Ramstedt's operation) or by cutting out the action of the muscle by a small pyloroplasty.

PROBLEM NO. 4: PRE-PYLORIC ULCER.

None of the patients presented any very serious surgical problems. In four out of twenty-two cases a partial gastrectomy was done (to which these cases lend themselves). The remaining patients got permanently well after gastro-enterostomy, probably because these ulcers are nearly always associated with a high-grade pyloric stenosis and this, as we know, insures the functioning of the stoma. As gastrectomy is easy in this situation, we must think of the question of cancer supervening. One of these patients developed this disease in a prepyloric ulcer two years later. It may have been there at the operation and I must have been suspicious of the ulcer, as I proposed resection at a second stage (a first stage gastro-enterostomy had been done, as the patient was very emaciated), but he refused it. My experience is that carcinoma does not grow on old ulcers as frequently as we are told. Nearly all the patients with carcinoma of the stomach whom I see, have presented a past history devoid of stomach trouble.

Nutritional disturbances and great emaciation are features in this group. I used to do a two-stage operation, a gastro-enterostomy first, to improve the patient's condition before the resection. Now I find there is not much difference between the immediate effects of gastro-enterostomy and gastrectomy, possibly on account of improved technique. It must also be borne in mind, when deciding to do a two-stage operation, that patients frequently refuse the second stage, because of the very great improvement accruing from the first-stage gastro-enterostomy.

PROBLEM NO. 5: ULCERS OF THE LESSER CURVATURE.

These were of four different types:

- (a) The sub-acute small ulcer (difficult to find).
- (b) The limited chronic ulcer.
- (c) Large chronic ulcer, with local contraction.
- (d) Small and large penetrating ulcer, with local contraction, and also with the more remote contraction of hour-glass and pyloric stenosis.

Each of these involved a very different set of circumstances. In the cases of this series the problem was solved in eight different ways. Types (a) and (b) are minor problems. Cure may sometimes be effected by a gastro-enterostomy. They are easily resected, because the peripheral area of infiltration and local contraction is small and therefore there is no puckering of the lesser curvature. Gastro-enterostomy as an adjunct in these cases should not be necessary if resection has been properly done.

Ten patients in whom resection of the

ulcer only was done, are quite well after periods varying over eight years. There has been no recurrence and the motility of the stomach is as good as it is in those in which a gastro-enterostomy was done with the resection. Of two patients with ulcer of the lesser curvature, for which a simple gastro-enterostomy was done, one is still uncured and the other is cured. These limited ulcers are the only cases suitable for Balfour's cautery method, which I do not use; it leaves devitalized, burnt tissue, which forms a scar and therefore a weak spot.

In an entirely different category are the types (c) and (d). They are very late and neglected ulcers of the lesser curvature and are major surgical problems. They test the surgeon to his utmost. The ulcers are very old, very large and have a very extensive area of inflammatory infiltration and dense fibrotic thickening, almost like cartilage. They adhere extensively to the surrounding organs, especially to the pancreas or liver, often both, and ulcerate deeply into these organs, the base of the ulcer being formed by the tissue of the liver or pancreas. They never heal by non-surgical treatment and cause intense suffering and are occasionally associated with profuse hæmatemesis. They attain their large size, because, being remote from the pylorus, they do not involve it early and therefore nutrition is not impaired and the patients do not seek the surgeon. Because of their penetrating character, there is no periodicity of symptoms; pain is severe and almost continuous. They are usually only seen on the lesser curvature and posterior wall. Gastro-enterostomy is useless and only adds to the extreme misery. It is in this class of case, especially if in the lesser curvature, that Sir Berkeley Moynihan does a gastro-jejunostomy and feeds the patient through a tube into a jejunostomy opening for any period up to three years. He says: "Where there is a large ulcer excavating the liver or pancreas and extending up almost to the œsophageal opening and the patient is a 'poor surgical risk,' a total gastrectomy would be necessary and cannot be done." He then recommends the above procedure.

Ulcers on the posterior wall, penetrating the pancreas, are very inaccessible, but when they extend on to the lesser curvature and adhere or penetrate the liver as well, they are most unmanageable. These old ulcers cause great contraction of the stomach in all directions, so that the pylorus is drawn towards the œsophageal orifice and the greater towards the lesser curvature. This puckering and shortening of the lesser curvature is the great source of difficulty in removing ulcers of this region. There is usually in a large ulcer only about 2.5 cm. of sound tissue intervening between the infiltration of the ulcer and the œsophagus. Total gastrectomy (a serious risk) would be necessary to extirpate the ulcer.

Methods Employed in the Different Types of Old Ulcer of the Lesser Curvature.

These were:

- (1) Inorganic hour-glass constriction, with associated ulcer, resection of the ulcer with a gastropasty (no gastro-enterostomy).

- (2) Resection of the ulcer and if the resection interfered with the patency of the pylorus, gastro-enterostomy was performed.
- (3) Mid-gastric resection was done where the situation of the ulcer was suitable for this operation.
- (4) Partial gastrectomy after Polyá when the ulcer was in the *pars pylorica*.
- (5) Resection of the lesser curvature and gastro-enterostomy where the ulcer involved the whole lesser curvature, as in Cases 15 and 45. In Figure III. the following will be noted:

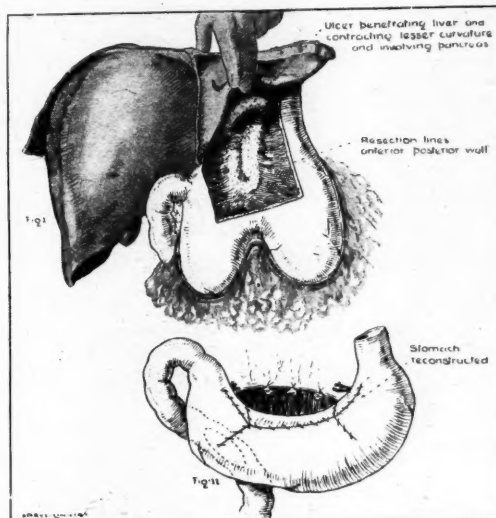


FIGURE III.
Resection of extensive ulcer of the lesser curvature, penetrating the liver and involving the pancreas; associated with a gastro-enterostomy.

- (a) Amputation of lesser curvature with removal of the adjacent anterior and posterior wall.
- (b) Piecing of the remnants together to make a sausage-shaped stomach.
- (c) Performance of a gastro-enterostomy.
- (d) Reinforcing of the suture lines with "omental scarves" (Case 45).

The patient in whom the last method was carried out, did perfectly well and his stomach functionated perfectly. He was up and about the hospital when he got a broncho-pneumonia, probably influenzal, as that disease was raging. Dr. Brennan, the Pathologist, who made the autopsy, reported that the stomach had healed with a perfect result and that there was no sign of any cause for the lung trouble in the abdomen. All the other patients have done well and have now neither loss of motility nor gastric disturbance.

PROBLEM NO. 6: ULCER OF POSTERIOR WALL.

Just as fascinating a study of surgical difficulties was provided by the management of the penetrating ulcer of the posterior wall. These ulcers, because of their situation, were practically all adherent to or penetrating deeply the pancreas. They were generally very big. If they were high up towards the cardia

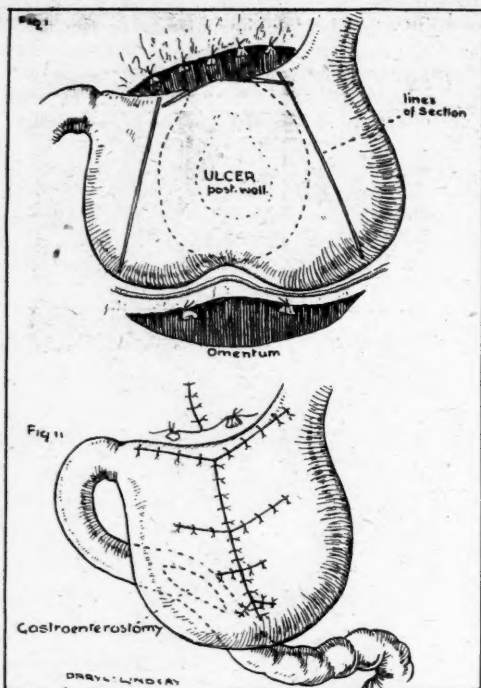


FIGURE V..

Resection of large ulcer of the posterior wall, with enlargement of the stoma of a pre-existent gastro-enterostomy.

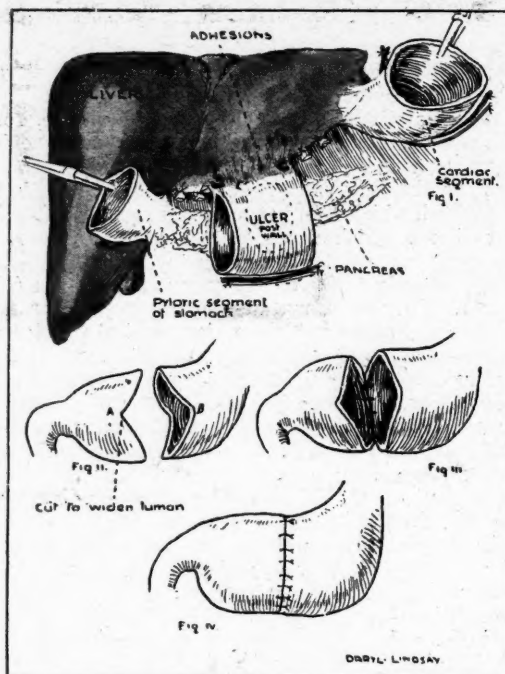


FIGURE VII..

Resection of ulcer of the posterior wall in the middle of the stomach. The middle segment is devascularized and made accessible.

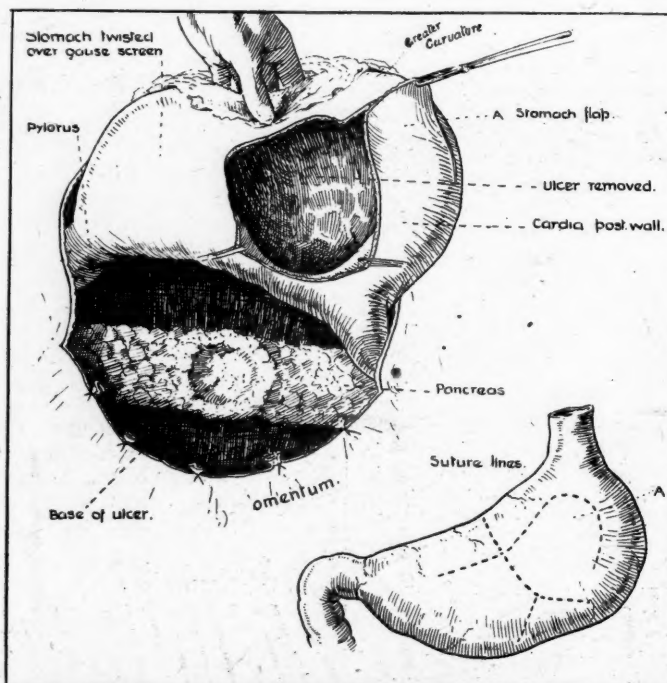


FIGURE VI..

Resection of a very large ulcer situated high up on the posterior wall of the cardia and deeply penetrating the pancreas. No gastro-enterostomy.

they bled more than they pained, because peristaltic movement was less. If they were situated more towards the pylorus, they often bled; but pain was the striking feature. The only chance of a permanent cure of these ulcers was a wide removal and, impossible as they all seemed to start with, I have not yet found either a lesser curvature or posterior wall ulcer in which this could not be successfully accomplished with a margin of safety for the patient. The whole object was to deal with the stomach in such a way as to expose the ulcer area to an unfettered attack.

In ten cases of this type, each had to be approached in a different way, according to the situation of the ulcer and other circumstances.

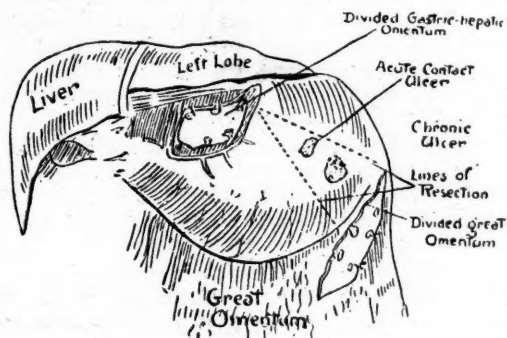


FIGURE IV..

Figure IV. (Case 30) is a sketch to show how non-penetrating posterior wall ulcers in unusual positions were dealt with by methods which will be described in detail later. It was interesting to notice that on opening the stomach a small "contact or kissing" ulcer was discovered on the anterior wall, opposite the big ulcer. This was not palpable and might very easily have been overlooked by the clamp method.

The patient already referred to (Case 48) was seen in consultation with Dr. Stawell. He was in a miserable state. He had been operated on previously and a fixed, inoperable tumour, supposed to be malignant, had been found. A posterior gastro-enterostomy had been done with no relief. I have referred earlier to the diagnostic incidents that led up to his operation, at which a large inflammatory tumour formation surrounding an ulcer was found. The base of the ulcer was deeply buried in the pancreas, while the whole posterior wall of the stomach was united by dense fibrous tissue to that organ. The ulcer also involved the lesser curvature and with the adhesions of the gastro-enterostomy previously performed, no case could appear more inoperable and formidable.

Figure V. shows the methods employed for the resection and reconstitution of this stomach. Notwithstanding the many lines of suture, there was no narrowing whatever of the pylorus or of the lumen of the stomach. When the old gastro-enterostomy stoma was explored from the inside of the stomach, it was found that it only admitted the first finger. A gastro-enterostomy with a small opening is not only valueless, but harmful, so the stoma was quickly enlarged

by doing a "pyloroplasty," as it were, from the mucous membrane side of the stomach at each end of the stoma. This man has been very well for three years, except for a slight hæmorrhage and pain about two months ago, which cleared up in a few weeks.

Another patient (Case 60) was seen in consultation with Dr. Sewell. He suffered from profuse hæmatemeses, was extremely anæmic and the poorest possible "surgical risk." His pain after food was not great. He had previously been operated on by a competent surgeon, the stomach opened and the ulcer pronounced quite inoperable. At operation a very large ulcer was found very high up on the posterior surface of the cardiac portion. I was surprised to find an ulcer so high up in this region. The ulcer had excavated deeply into the pancreas, towards the tail, and the whole posterior wall of the stomach was adherent to that organ. He was a deep-chested man with a high stomach; altogether a most uninviting proposition. Figure VI. shows the details of the operation, which were as follows:

(i.) The great omentum was extensively separated from the stomach.

(ii.) The greater curvature was pulled up over the left lobe of the liver.

(iii.) The ulcer-bearing area was separated from the pancreas and removed from the stomach.

(iv.) The suturing was so arranged that there would be no constriction of lumen.

(v.) The omentum was divided into three sections; the middle segment was taken through the transverse mesocolon and used as a movable screen, opened out over the back of the stomach to prevent the stomach adhering to its old ulcer bed. The two lateral sections of omentum were then sutured together.

(vi.) No gastro-enterostomy was done, because we were dealing almost entirely with the cardia, which only maintains a tonic contraction. Dr. Sewell tells me that this man has gained 19 kilograms in weight and that he is now quite well.

The ulcers in Cases 40, 46 and 60 were dealt with by an entirely different method. The adhesions to the liver were so wide-spread and dense and the ulcer was so deeply and widely imbedded in the pancreas that it was impossible to get at it. The ulcer was nearer the head of the pancreas and it was possible to get a small margin on the cardiac side of the lesser curvature. The stomach was cut across at "A" and "B," the blood vessels and omentum ligatured and the pyloric and cardiac segments were turned laterally. The middle section of the stomach was then bloodless and the difficult ulcer and adhesions were much more accessible and could be dissected out. In three cases, it being a small end, the pyloric section was closed and the cardiac end was united to the jejunum, after Polyá. In the last three cases, the pyloric segment being a reasonable size, the pyloric and cardiac segments were joined together, making a small stomach. "C" and "D" are incisions in the long axis of the stomach, which, when included in the circular suture, act as compensation for any hour-glass contraction that might eventually result. (See Figure VII.)

(To be continued.)

GALL STONES.

By Francis H. Langlands, F.R.C.S. (Eng.),
Senior Surgeon to In-Patients, Melbourne Hospital.

Function.

We know the gall bladder is not a vital organ, but is it in man an important organ? It is opportune to consider the statements regarding the functions of the gall bladder; whether it has any function not vicariously undertaken after its removal.

In this connexion attention is more particularly drawn to a sphincter composed of plain muscle fibres at the duodenal end of the common duct, discovered by Oddi in 1887.

Experiments were made by Todd and Mann on cats, dogs and goats by removing the gall bladder and noting the effects on the ducts. They found that the pressure in the common duct was greatly reduced a few weeks after cholecystectomy and that in all cases the extra-hepatic ducts were greatly dilated. They accounted for this on the supposition that immediately after cholecystectomy the sphincter of Oddi remains normally contracted and in the absence of the gall bladder, the ducts of necessity dilate. Later, the sphincter becomes paralysed from tension within, so that the common duct pressure is greatly reduced, the ducts remaining dilated. The pancreatic duct in no case was enlarged.

To demonstrate the responsibility of the sphincter, they experimented in several ways; these experiments demonstrated that the sphincter was responsible for the dilatation after cholecystectomy. In a few cases the stump of the cystic duct dilated also; that it did not do so oftener was explained by the fact that it was ligatured close to the common duct. The practical application of these experiments is that cholecystectomy will probably cure pancreatitis by reducing the common duct pressure and by lessening the possibility of bile entering the pancreatic ducts.

Pressure seems necessary to carry the bile through the ring sphincter muscle at the ampulla. For this reason the gall bladder by its rhythmic contractions is thought necessary to force the bile into the intestine. Be this as it may, observations have been made which demonstrate that the muscle fibres in the wall of the gall bladder are antagonistic to those in the muscle sphincter. Stimulation of the peripheral ends of the splanchnic nerves causes at the same time a contraction of the gall bladder and an inhibition of Oddi's sphincter. Stimulation of the vagus causes exactly the opposite effects.

This brings us to a consideration of the functions of the gall bladder, which are by no means definitely established up to the present time.

Mayo states that the gall bladder does not act as a reservoir for bile as some 900 to 1,500 c.cm. are secreted in the 24 hours. The capacity of the gall bladder is only 45 c.cm. or slightly more. It has very little muscle tissue, but a great deal of elastic tissue and it seems probable that one of its functions is to relieve pressure in the bile ducts, acting as a tension bulb.

The evidence to support this view has been mentioned as it has been shown in some cases after removal of the gall bladder that the common duct and

more especially the stump of the cystic duct have been expanded. The hepatic and common ducts are muscle covered tubes and are functionally able to overcome the muscle of Oddi.

There is also a supply of mucus from the gall bladder, which mixes with the bile and tends still further to reduce the chances of pancreatic complications.

It has been shown by much careful work that the chief constituents of gall stones are derived from the mucosa of the gall bladder and that for their production certain alterations are necessary. In the great majority of cases, gall stones are formed in the gall bladder. It is believed that when gall stones are found in the ducts, even in the hepatic ducts, they have usually been formed in the gall bladder and have migrated to the ducts. Gall stones may, however, form primarily in the ducts and it is beyond doubt that intra-hepatic stones can be and are found in the liver, as the stones removed from the hepatic ducts differ absolutely in shape, colour and character from stones formed in the gall bladder.

For the production of a gall stone bacterial infection seems necessary and the micro-organisms must be attenuated, not virulent; even the injection of attenuated cultures causes no change, if drainage from the gall bladder is free.

Of the two channels for the entrance of micro-organisms, either from the duodenum or the blood current, it seems probable that both have their share in the formation of stones, though the arguments seem strongly in favour of the blood borne infections in the majority of cases.

Rosenow (1) has shown that the infection of the gall bladder is interstitial.

Operations.

Before going on to the consideration of the surgical procedures for the relief of gall stones, I should like to emphasize the need of accurate diagnosis and early operation. The recent improvements in the Röntgen diagnosis of stones are worthy of notice and suggest their use in all suspected cases of gall stones. Case states that the belief is warranted that gall stones can be demonstrated by means of X-rays in at least half the positive cases and that in a considerable proportion of the other half there is demonstrable evidence of gall bladder disease. I would merely comment that negative evidence is of no value.

I think we must all agree that gall stones are foreign bodies and that they should be removed before infection and other complications occur.

In the consideration of the two methods of dealing with gall stones in the gall bladder, there are many questions for debate, but unfortunately I find it difficult to furnish conclusive evidence from the cases operated on in favour of the one method or the other.

Surgeons are apt to lose sight of hospital patients after a short lapse of time and the number of private patients seen by any one practitioner is small.

Until recently, I adopted the more conservative method of cholecystostomy wherever possible and reserved the practice of cholecystectomy for those cases in which much structural alteration was found in the walls of the gall bladder.

Of my patients in private practice operated on during the last ten years, all but two subjected to cholecystostomy have shown a remarkable freedom from trouble. However, about four years ago I removed a gall bladder that was packed with stones but seemed healthy. It was examined subsequently and found to be carcinomatous. This fact opened my mind to the need of a revision of my practice and also to the difficulty of determining, even at operation, what was a healthy gall bladder.

Examining the two methods of cholecystostomy and cholecystectomy we must consider:—

- (i.) The relative mortality of the two operations;
- (ii.) The frequency of recurrence of stones;
- (iii.) The frequency of the pain resulting from infection and adhesions;
- (iv.) The occurrence of cancer.

I have gone through the records of some 208 operations performed at the Melbourne Hospital from 1916-1919 and find that cholecystostomy was done 127 times and cholecystectomy 81 times. Comparing the mortality of the two operations there were seven deaths after cholecystostomy and nine after cholecystectomy in this series. There were definitely six recurrences of stones after cholecystostomy in which cholecystectomy was performed later.

Two of the later operations were performed for stone in the common duct after the previous cholecystectomy. In another case following cholecystectomy there was an operation eight months afterwards for intestinal obstruction. From this it can be seen that the removal of the gall bladder does not prevent stone formation in the ducts. It is possible that in the two cases mentioned a small stone had been overlooked and had subsequently increased in size, but from the notes of the cases this appears unlikely.

The occurrence of intestinal obstruction after cholecystectomy shows that excision does not entirely do away with the danger of adhesions and their effects.

The figures given are few and perhaps do not provide definite proof in favour of the one operation or the other, but they certainly serve as a confirmation of the results stated in the more numerous and more elaborately compiled statistics from America and elsewhere.

The higher rate of mortality might well be explained by the character of the cases operated on—most of them late cases with severe local and general conditions.

Cancer.

(1) As regards the occurrence of cancer Siebert states that in 95% of all cases of primary cancer of the gall bladder stones are present and only in 15% of secondary malignant disease.

(2) Cancer of the gall bladder is three times more frequent in females, which corresponds with the frequency of gall stones.

The indisputable facts are that—

(1) Gall stones are frequently found associated with primary cancer and rarely with secondary cancer.

(2) That the relative proportion of gall stones and malignant disease of the gall bladder in women and men is practically identical.

(3) That the pathological lesions found are best explained on the theory of gall stone irritation.

I ought to say that Sir J. Bland Sutton does not agree with this latter statement. He writes that the most important feature connected with primary cancer of the gall bladder is its almost constant association with gall stones.

The liver filters off micro-organisms from the blood conveyed to it by the portal vein and discharges them with the bile. These micro-organisms stimulate the epithelium of the bile passages to unnatural growth. The mucous membrane of the gall bladder normally contains few glands, but when chronically inflamed, mucous glands become abundant and of large size. These glands are the chief source of the calcium found in mixed biliary concretions.

Bland Sutton has not accepted the opinion that gall stones are the cause of cancerous change; he adds that he prefers to believe that the pathological conditions of the epithelium lining the gall bladder which cause it to produce cholesterol in abundance, increase its vulnerability to the micro-parasite of cancer.

When cancer arises in the excretory ducts of the liver it is exceptional to find the disease associated with gall stones.

It so happens that even on the operating table it is sometimes impossible to say whether a thick-walled gall bladder is malignant or not, as exemplified by my case mentioned earlier. When patients have been operated on for known cancer of the gall bladder, one year should be the utmost length of life, but several patients in whom excision was performed on account of thick walled, functionless bladders, lived for periods from two years up to six years. The frequency of malignant disease, although not great, would indicate a preference for excision, the main reason being the difficulty of detecting the disease otherwise than microscopically.

The removal of gall stones by cholecystostomy would in most cases be as effective as cholecystectomy in removing the infection and irritation of the stones, but in some thickened bladders a gall bladder already becoming carcinomatous might be left.

In reference to cholecystitis, I might mention that the pathological lesions in the gall bladder are not definite entities, but are degrees in a process of reaction to irritation.

In studying the notes of the cases examined and enumerated, I find it hard to follow what had determined the nature of the operation.

In the majority of instances in which cholecystectomy was performed, notes were made of thickened walls and possible early malignant disease.

Cholecystectomy was performed for empyema and for perforation of the gall bladder; cholecystostomy was also carried out for the same conditions. The results seemed to depend more on the patient's condition at the time and on other complications met with at the operation.

Equally difficult conditions of the gall bladder were met successfully by either operation, but in nearly all the fatal cases well marked pancreatitis was specially mentioned in the reports and in several cases cholangitis.

To sum up the results of a study of this series of hospital cases from the latter end of 1916 until the middle of 1919, I have come to the conclusion that in the majority of cases of gall stones the resulting mortality of the two operations will show very little difference in the hands of equally skilled surgeons.

In the earlier part of the series, the cholecystostomy operations showed a decided advantage, but this advantage gradually decreased until in the later part of the series the mortality was about the same in the two methods.

Notwithstanding this fact, the results must depend on many details not procurable from the records; the judgement of the surgeon in each individual case is an all important factor. There are certain cases in which the simpler operation must give the patient a better immediate chance.

The general condition of the patient, the degree of infection of the ducts and pancreas and the amount of pericystitis must in many cases determine the surgeon to use the simpler method. Regarding the ultimate results the formation of stones in the ducts cannot be eliminated altogether nor the occurrence of adhesions and their effects by the removal of the gall bladder. On the other hand it must be remembered that in draining the gall bladder and removing the stones, the surgeon has not done all that is necessary.

Granted that some interstitial infection is at the root of the formation of stones, have we removed the source of infection? Otherwise a source of further trouble is provided in the still present gall bladder.

If we accept the theory that the gall bladder exerts pressure on the flow of bile and so aids its passage through the sphincter of Oddi, the ordinary function of the gall bladder after cholecystostomy may be interfered with by adhesions almost as much as if it had been removed; as a means of relieving pressure in the bile ducts in many cases it must fail. It is recorded in many of the patients subjected to re-operation that the gall bladder was found shrunken and thickened.

On the whole, I feel the balance to be thrown on the side of cholecystectomy and that it becomes more a question of when not to do cholecystectomy. This must be decided by the general condition of the patient and in those advanced cases with secondary complications of infective diseases of the ducts and pancreas which demand the simplest relief at the time for the purpose of saving life.

Many writers have given indications for cholecystostomy or cholecystectomy, but I can only repeat that either operation can be used for most of these conditions; the one used will depend on the experience of the surgeon and on his judgement of the individual case.

In speaking of cholecystectomy I should like to draw attention to the need in some cases of removing the gall bladder starting at the fundus.

In most cases it is easier and leaves the field clearer

to clamp the cystic duct and artery first and to remove the gall bladder from within outwards.

In cholecystitis, as adhesions form to the serous coat of the gall bladder, that surface which lies in contact with the liver, becomes more firmly welded to it and the liver substance becomes infiltrated with a fibrous deposit. The changes in the liver substance in immediate contact with the gall bladder are more marked near the cystic duct than near the fundus and in such cases it is better to free the fundus, using it as a guide to stretch the duct, more easily to define it. Another difficulty is to avoid including the hepatic or common duct in the ligature. In one of the cases of the series given this accident happened.

Reference.

- (1) *Journal American Medical Association*, May, 1915.

Reviews.

THE EUCALYPTS.

In his work on the eucalypts¹ Mr. Russell Grimwade has endeavoured to awaken fresh interest in the genus by giving a condensed account of the chief characters of about eighty of the more common species. The book is intended mainly for the layman who may not have the opportunity of consulting the larger and more technical publications of von Mueller, of Maiden and of Baker and Smith. In a useful introduction he discusses the general botanical position of the genus as a whole and the various characters which may be relied on in the differentiation of the various species. As it has been found impossible to group the eucalypts satisfactorily according to any one specific character, such as mark, anthers, fruit, opercula, etc., Mr. Grimwade has adopted the plan of placing his species according to geographical distribution. One satirist even went so far as to say that the only feasible classification was the alphabetical. Mr. Grimwade groups his eucalypts as they would be encountered by one making a journey from Cape York in a southerly and then westerly direction round the Australian continent. A useful glossary of botanical terms follows the introduction. The rest of the book is devoted to a series of tinted photographic delineations of the various species accompanied by a short description of eight or nine lines of the habitat, bark, leaves, opercula, flowers and fruits. It is a pity that no mention is made of the form of the tree, whether tall forest tree, mallee, or shrub, as this is most important, especially to the man of limited botanical knowledge. Unfortunately, many of the photographs are too reduced to show distinctly the venation of the leaves. Several of the illustrations show only immature fruits and a few others have no fruits at all. Yet the fruits are being relied on more and more as the chief basis of classification. Indeed, Messrs. Baker and Smith in the second edition of "A Research on the Eucalypts" just issued, have a sketch of a single fruit in a space alongside the letter-press description of the fruit of each species. This is quite an innovation. Mr. Grimwade concludes his book with an index of specific names and also one of popular names. The author has in this useful publication given great assistance to those of the public who desire a closer and more accurate acquaintance with this the greatest genus of plants in Australia, and one of the most valuable in the whole world.

In the account, published in our last issue, of the clinical meeting of the New South Wales Branch of the British Medical Association, held at the Mental Hospital, Callan Park, on October 8, 1920, the legend appended to Figures VIII. and IX., on page 99, were inadvertently transposed. Figure VIII. represents the active type and Figure IX. the quiescent type of thyroid gland found in patients suffering from epilepsy.

¹ An Anthography of the Eucalypts, by Russell Grimwade, B.Sc.; 1920. Sydney: Angus & Robertson, Ltd.; Crown 4to., pp. 98, with over 40 illustrations. Price, 6s.

The Medical Journal of Australia.

SATURDAY, FEBRUARY 5, 1921.

The Art of Writing.

From the days of the Father of Medicine the practice of our profession has gone hand in hand with culture and education. In the matured splendour of Attic civilization the physician held a high and honourable place. He was expected to possess not only a knowledge of medicine, but a high order of general scholarship. Among his anticipated accomplishments were a familiarity with past and current philosophy, a keen appreciation of poetry and general literature, a goodly smattering of history and a grounding in theology. These were as essential as a knowledge of the theory and practice of healing. With the passing of the Greek and Roman civilizations medicine, in company with all the arts and sciences, entered into an obscurity which lasted with little intermission till the fall of Constantinople and the dawning of the Renaissance. The Renaissance brought rapid triumph to poetry and art; it was more dilatory in bestowing its favours on science. The physician had little stimulus to interest himself solely in his profession. He turned more and more to classical literature, philosophy and politics. These were channels for his talents and playthings for his leisure. The history of English literature contains the names of many masters of poetry and prose who were disciples of Æsculapius — John Locke, Henry Vaughan, Thomas Browne, Tobias Smollett, Oliver Goldsmith, John Keats. All of these, with the possible exception of Locke, while adding glory to the English tongue, contributed nothing of value to the sum of medical knowledge.

Times have changed and medicine has come into its own. The doctor is now expected to prevent and cure disease and it is no longer demanded that he write a treatise in Latin or criticize with intelligence the latest volume of poetry. He is faced instead with a formidable array of subjects which he must more or less master. Biology, physics, chemistry, anatomy, physiology, pathology, medicine, surgery, midwifery

and the various branches of these subjects make up the armamentarium with which the medical student must be equipped. To display efficiency in these subjects of study he must eschew the arts and humanities and, in a word, sell his soul to his work. The new ideal has its compensations. The profession, if less cultured, has a practical utility unknown to the imaginations of our ancestors and the practitioner of medicine, compared to his prototype of old, can look on the ravages of injury and disease with a feeling less akin to despair. Preventive medicine opens fresh woods and pastures new, tempting the modern mind to exploitation. The good grain of science is too copious not to be garnered and its application to humanity too sacred to be ignored. The doctor becomes an efficient man at his work and disregards more and more the niceties of general culture.

And yet the art of writing will not be denied. The "movable type of Faust" ordained many centuries ago that science could not progress without the ancillary aid of letters. The printed word is the means by which the pure and applied sciences roll on to their appointed destiny. The doctor who makes a new discovery or a valuable observation, must give it publicity by writing in the vernacular. True it is that many of the terms he uses would have made Quintilian stare and gasp, but his meaning is easily understood, though not necessarily of the multitude. Occasionally his full meaning is comprehensible to no one, but then he is probably lacking in power of imagination and clarity of thought. Occasionally, also, he writes in language which proclaims him a master of prose. Men like Sir James Paget, Sir William Osler and Dr. Charles Mercier had this rare gift. Sir Clifford Allbutt is one of the favoured band who is still spared to us. These men gave valuable contributions to medical science and graced them with both beauty of style and ripeness of scholarship. We deplore the fact that medical journals often contain articles of high scientific merit which are disfigured by clumsiness of style. Barbarisms of diction and even grammatical atrocities are not infrequent in papers wholly admirable from a medical point of view. Too little attention is given to the value of simple words and too great a use made of technical expressions to which a precise meaning is not attached. It is not sufficiently recognized that a

well-written paper means, as a rule, that the author thoroughly understands his subject and that, conversely, a writer who couches his thoughts in difficult, indefinite expressions is open to the charge that he has an imperfect comprehension of his theme.

It is sometimes forgotten that a correctly worded English sentence has one meaning only. Ambiguity of expression is neither accurate nor ornamental, neither in keeping with the spirit of science nor the spirit of literature. While it is permissible to write in parable and to marshal in column of print the gauds and garnishes of expression, it is unpardonable to invest a sentence with the appearance of a Chinese puzzle.

The grammarians have divided the study of language into orthography, etymology, syntax and prosody. The majority of medical practitioners imbibed this knowledge in the tender morn of youth with the assistance of a schoolmaster and a birch. Those who could assimilate it, learned to write and those who could not, joined the ranks of the literary Philistines. In Australia, the matriculant who enters the profession of medicine is supposed to be endowed with educational qualifications which insure his freedom from egregious blunders of grammar and style.

BACTERIA IN MILK.

Under the provisions of the so-called "Pure Food Acts," a standard varying within narrow limits has been set up in regard to the chemical composition of pure cow's milk. Wise legislators and omniscient hygienists have ignored old-fashioned Mother Nature, who has long centuries ago given a wide variation of chemical composition to milk, according to the diet of the cow or other lactating animal and according to the environment. Milk changes in protein, fat and water content as the lactating period advances. Because it is easier to condemn all milk containing a relatively low proportion of protein or fat than to determine when the nefarious vendor has increased the quantity of fluid sold by applying to the village pump, we are at present faced with the untenable position that samples of milk are regarded as adulterated if they fail to conform with the standard, no matter whether the failure is natural or artificial. The pure food laws do not contain any provision for the condemnation of milk containing bacteria or pus. For many years samples of milk were seized at the several railway termini in London for the purpose of analysis and submitted to the Lister Institute of Preventive Medicine. These samples were examined bacteriologically, as well as chemically. Dr. C. J. Martin exhibited in the Medical Museum of the Annual Meeting of the British Medical Association

in 1910 some samples of milk which had the appearance of being extremely rich in cream. A second exhibit revealed that this appearance was due to a heavy deposit of pus and blood cells derived from infected udders. Milk vendors in Australia are not required to hold certificates setting forth the number of bacteria contained in each cubic centimetre of the milk sold. A disclosure of the figures would probably cause consternation among the purchasing public. There is, however, some objection to the usual method of presenting the ascertained facts concerning the germs in milk. The origin of the bacteria found in milk is of considerable importance. Usually the bacteriologist does not trouble to distinguish between the various forms, but contents himself by announcing the number in a measured unit. The rate of multiplication of bacteria in milk is not taken into account, so that the consumer may receive milk in an undrinkable condition, even though a sample has been shown to be reasonably pure. It has been shown that both with bacteria derived from the udder, teat or milking can and with germs contaminating milk in transit or in the home, there is a preliminary period of latency or lag, a period during which the number of bacteria may diminish and finally a period during which the increase in number follows a logarithmic curve. Some attention has been given to the second period, but as the findings recorded have differed greatly, the significance of the phenomena has often been challenged. Dr. W. H. Chambers has recently endeavoured to throw some fresh light on this occasional diminution in the number of bacteria present in milk.¹ Other workers have recognized that variation occurs according to the bacterium concerned. A few have claimed that the milk of some cows is possessed of a bactericidal power, but not of all cows. Dr. Chambers demonstrates quite clearly that the bactericidal action of milk is entirely absent in the majority of cows. Further, he has found that when it is present, the action is specific to certain bacteria. His experiments were undertaken with *Bacillus lactis acidi*, *Bacillus coli* and a brilliant red chromogen isolated from a creamery can. The milk of eleven cows was tested. A distinct decrease in the number of coli bacteria was noted in the case of the milk of three cows. In one case there was some diminution in the number of organisms when the chromogen was employed, while in the milk of another cow there was some action on the lactic acid bacillus. He was able to show that this decrease was not brought about by agglutination and consequent clearing of portion of the sample. The germicidal property is destroyed by heating the milk to 80° C. for two minutes.

Further information is needed to disclose the full significance of this phenomenon. In the first place, it is necessary to trace the origin of the bactericidal action. In the case of Dr. Chambers's experiments with *Bacillus coli*, the restraining influence was manifested for two hours, before the organisms began to increase at the normal rate. It would be of use to ascertain whether a cow could be immunized against one or more strains of bacteria, so that the bactericidal property of the milk might be prolonged for several hours. Another fact of importance should be

¹ *Journal of Bacteriology*, November, 1920.

examined. It is whether bactericidal power in milk can be active against contaminants removed from the cow or the dairy. It is possible that information concerning the source of contamination might be adduced from the power of a sample to restrain the immediate growth of a given bacterium. Dr. Chambers conducted his experiments at incubator temperature. In order to safeguard milk from gross contamination, chilling is essential. It is therefore necessary to know whether the bactericidal action proceeds at low temperatures for a period of time. If use can be made of either a natural or an artificially-induced germicidal action, it would be advisable to review all the facts before sanction is given to heating of milk for the purpose of killing the contained bacteria. The bacteriologists have much work to accomplish before full advantage can be taken of this strange property of milk.

TRINITRO-TOLUENE POISONING.

During the course of the war and since many articles have been published dealing with the clinical manifestations and pathological changes produced by the absorption of trinitro-toluene. The majority of these articles are descriptive of observations in munition workers. Certain definite facts have been elicited, but the whole story of the toxicology of trinitro-toluene cannot be told until the chemical and physical changes have been studied in experimental poisoning in animals. It is probable that some of the symptoms and signs usually ascribed to this compound are in reality due to other chemical substances used in the preparation of trinitro-toluene. The cases of gassing have been described in detail. The cyanosis, dyspnoea, loss of consciousness, bronchitis and oedema of the lungs and other signs are attributable to sulphuric and nitric acid fumes, to methane and to chlorine. Trinitro-toluene is known to produce a dermatitis when brought repeatedly into contact with the skin. The substance is an irritant and stain and the changes are of a destructive nature. The inflammatory changes are probably caused by a secondary reaction. Gastro-intestinal disturbances are held to be caused by the absorption of the substance, but there is little direct evidence of the mechanism of the production of these changes. It is not excluded that they are caused by acids. All observers are agreed that the chief effect of trinitro-toluene is on the liver. During life there is a profound jaundice and after death a condition almost identical with acute yellow atrophy is found. In these cases there are often hæmorrhages in the viscera and at times hæmolysis of the circulating blood cells. Trinitro-toluene is excreted by the urine and faeces in organic combination. Its presence cannot be detected until the combination is broken down by the action of acids. The organic combination is said to be non-toxic. Webster's test for trinitro-toluene in urine depends on the appearance of a deep red colour when the freed substance is treated with potassium hydrate.

Dr. S. R. Haythorn has carried out a large number of experiments in animals in order to determine the exact nature of the poisoning.¹ He was unable to effect any definite signs of poisoning by inhalation

of volatilized trinitro-toluene. When the substance was rubbed into the skin it produced an oedematous condition of the deeper layers, with well marked leucocytic infiltration. The substance was absorbed through the skin and toxic changes were also produced by feeding. The effect on the liver of rabbits and guinea-pigs was the same as that in man. Dr. Haythorn describes these changes in detail and depicts them in microscopical illustration. In some animals methæmoglobin was found in the urine during the late stages of poisoning. Guinea-pigs were frequently affected with a severe form of anæmia. A close study of the blood changes revealed that the toxic agent exercised an intense destructive action on all the cellular elements. No changes were discovered in the bone marrow. The blood changes included fragmentation, polychromatophilia, anisocytosis, lymphocytosis, the appearance of nucleated cells and a great increase of reticulated forms. Recovery, even after the anæmia had assumed severe proportions, was common when the source of poisoning was removed.

Dr. Haythorn does not have at his disposal any quantitative data on which deductions might be drawn. If it be true that trinitro-toluene is excreted in a harmless form, more evidence would be required to determine the fate of the substance in the liver and in the blood. It is not known what proportion of the absorbed poison is excreted in the form of a combination of trinitro-toluene. In the absence of this information, it is impossible to be certain whether the liver and blood changes are produced by the substance unchanged, or whether dissociation is necessary for the production of toxic effects. Trinitro-toluene is obtained by the nitration of toluene, a benzene substitution product. It is of more than academic interest to recall the fact, first demonstrated by Stadelmann in 1881, that toluylen-diamin causes intense jaundice in animals. This substance also attacks the blood corpuscles, leading both to hæmolysis and to profound destruction of erythrocytes. It was suggested many years ago that the changes in the blood did not occur until the toluylen-diamin was converted into another compound by oxidation. Exact information has not been produced. It is unfortunate that Dr. Haythorn was content to investigate the solubility of trinitro-toluene in the tissue and body fluids qualitatively and not quantitatively. He states that the value of the results did not seem to justify the work necessary. It appears to us that the toxicology of this substance should be worked out by a careful chemical investigation, of which the quantitative estimation of the substance absorbed and excreted should be the starting point.

We regret to announce the death of Sir Frederick Taylor, M.D., F.R.C.P., who was Honorary Consulting Physician to Guy's Hospital and a member of the Senate of the University of London. He had a distinguished career, which was crowned by his election to the presidency of the Royal College of Physicians in 1916 and by his creation as a baronet in 1917. He wrote, among other works, "The Practice of Medicine," "On Some Disorders of the Spleen," "Cirrhosis of the Liver in Children" and "The Need of Research in Medicine." He married Helen Mary, daughter of Frederick Manby, of East Rudham, Norfolk. He has one surviving son, Dr. Eric Stuart Taylor, who inherits his father's title.

¹ The Journal of Industrial Hygiene, December, 1920.

Abstracts from Current Medical Literature.

ORTHOPÆDIC SURGERY.

(49) Treatment of Congenital Talipes.

Two principles are laid down by R. C. Elmslie (*Jour. Orthop. Surg.*, December, 1920) in discussing the treatment of congenital *talipes equinovarus*—firstly, that more importance should be attached to the functional use of the foot than to the apparent correction of the deformity and, secondly, that when a cutting operation has to be performed, the actual procedure adopted should be based upon the known pathological anatomy of the deformity. In summing up the pathological changes known to other writers and observations made on his own specimens, the author states that the greater part of the deformity in infants is due to displacement of the ankle, sub-taloid and mid-tarsal joints. A smaller portion is due to alteration in the shape of the neck of the talus and the anterior part of the *os calcis*. The resistance to correction lies chiefly in the talo-navicular capsule, the plantar fascia and the *tendo calcaneus*. The resistance of the tibial tendons is much less important. In inveterate cases the talo-navicular capsule and the displacement of the articular facet of the *os calcis* on to the inner side of the bone are factors which present the greatest difficulty in effecting correction. Treatment is commenced at the end of one month, unless the child is feeble and undersized. Under anaesthesia the foot is manipulated sufficiently to flatten the sole, to stretch the plantar fascia and talo-navicular capsule, and to force the cuboid and navicular bones into their normal positions. As a rule, the first manipulation ceases at this point. The foot is fixed in plaster of Paris, but no attempt is made to maintain the maximum correction obtained during the manipulations. A difficult deformity to correct is medial rotation of the whole foot. The author believes that this generally occurs below the malleoli and is due to imperfect stretching of the talo-navicular capsule. The plaster is applied by carrying the bandage first round the ankle and then two or three times round the anterior part of the foot, after which it is carried directly upwards over the top of the flexed knee. After a few turns round the knee the bandage is brought to the foot again and once more carried over the outer side of the knee. The longitudinal strands hang away from the leg and in completing the enclosure with plaster they are bandaged in and thus tend to increase the eversion. When the first plaster is removed and the inversion corrected, the foot is held in the abducted position and the *tendo calcaneus* stretched by dorsi-flexing steadily and strongly. When the foot lies at a right angle to the leg the surgeon may exert his whole weight to press on the anterior part of the foot until the angle of dorsi-flexion is between 20° and 30°. Another application of plaster is then made after the manner

of the first, but with the foot in the position of dorsi-flexion. This is maintained for six weeks, after which a simple club foot shoe is substituted and walking is permitted. When ability to dorsi-flex and evert the foot returns, walking without an appliance is allowed. It is not always easy to correct the *equinus* part of the deformity by manipulation alone and in some cases tenotomy of the *tendo calcaneus* is required. The author deprecates the frequency with which this operation is done, as it leaves a permanent weakness in the foot and decreases the power and size of the calf muscles. In older children and in adults manipulation (if necessary, with a wrench) is carried out once or twice. If reduction is incomplete an open operation is performed. The incision on the medial side of the foot exposes the tendon of the *tibialis posterior*, which is hooked aside. The anterior two-thirds of the medial lateral ligament is cut away from the malleolus. The talo-navicular capsule is cut away until the head of the talus is exposed. The tuberosity of the navicular bone is cleared upon its posterior and inferior aspects. A fibro-cartilaginous mass remains attached to the tendon of the *tibialis posterior* and this is then cut through, so that the talo-navicular capsule is entirely removed. A small incision on the outer side of the foot exposes the *os calcis*, which is completely divided transversely, about half an inch behind its anterior border. If the neck of the talus is considered to be an important element in the deformity it may be divided transversely. The foot is afterwards enclosed in plaster of Paris, which is removed at the end of six or eight weeks. When the patient cannot remain for after-treatment, transplantation of the *tibialis anterior* to the cuboid is more certain to prevent relapse than any other method.

(50) Finger and Toe Nail Extension.

Serious ischaemic damage, necessitating amputation of a portion of a finger, has followed the application of adhesive plaster for extension. To obviate this and to secure adequate extension of the terminal phalanx, J. E. M. Thomson (*Surg., Gynec. and Obstet.*, December, 1920) bores a hole through the nail just beyond the skin. A strong silk thread is passed through the hole and attached to a wire splint built on the principle of a Thomas's knee splint, the base of the finger or a plaster splint providing the counter-pressure. Extension may be increased by twisting the silk on a small piece of wood or other suitable material.

(51) The End Results of Peripheral Nerve Injuries Treated by Operation.

William Thorburn (*Lancet*, September 25, 1920) discusses the end results of operations undertaken for the repair of injuries of peripheral nerves. He states that the end result of nerve suture may be marred by the fact that there is even in a perfect end-to-end suture a histological shunting of the down-growing fibres into unusual distal channels. In gross or macroscopic shunting, e.g., in joining the distal

end of the facial to the proximal end of the hypoglossal or spinal accessory nerves the result may be even less satisfactory. The anatomical result may be more or less perfect, but what the author calls the economic result may be unsatisfactory. By this he means that the patient is not able to use the affected part as he ought to do. Such a defect may be due to psychological conditions, to the secondary changes of muscular atrophy or to arthritis, or possibly to a form of ataxia, in which, while all the muscles are capable of action, they can only be properly used while their action is under visual control. The economic result may, however, be better than the physiological result. Reviewing the results recorded, he concludes that very good results are obtained in between one third and two thirds of all cases, although he is doubtful whether a perfect neurological recovery is ever obtained. He had no experience of nerve grafting, but from what he had seen, considers it a very unsatisfactory procedure. He quotes the work of Stopford, who has shown that the nearer the suture is placed to the spinal cord, the more perfect will be the recovery. In all cases, however, the recovery of sensation has been particularly disappointing.

(52) Operative Treatment of Old Hip Disease.

Mark H. Rogers and Chas. W. Peabody (*Jour. Orthop. Surg.*, November, 1920) describe the operative treatment of old hip disease in patients over the age of 14 years. They have attempted to standardize the treatment in accordance with the various types of cases. In the first group they place those cases which are associated with firm ankylosis and deformity. The patient usually seeks relief on account of the deformity and the pain or discomfort arising from strain caused by the deformity. The treatment of this group is some form of osteotomy of the femur. In the second group are placed those cases in which the patient has deformity and movement. The deformity causes strain on the structures involved in the movement and leads to the so-called recurrence of symptoms. Osteotomy is contraindicated when there is movement, because the deformity tends to recur. Arthrodesis is the standard line of treatment. In doing this, an anterior incision is made and may be extended for 8 cm. along the crest of the ilium. Enough of the head of the femur is removed to allow correction of the deformity and apposition of the bony surfaces. Necrotic or purulent material is removed, though no attempt should be made to remove every portion of tissue which shows sign of pathological change. To cure the disease it is only necessary to obtain ankylosis. The third group, consisting of those cases in which the head is absorbed and the trochanter rides up on the ilium, is much more difficult to treat. The principle of treatment is to place the top of the trochanter into the acetabulum and attempt to make a stable joint.

MORPHOLOGY.

(53) Intestinal Anastomoses.

Florence R. Sabin (*Bull. Johns Hopkins Hosp.* September, 1920) continues the studies begun by Halstead and Mall in 1887 on the regeneration of structures in end-to-end anastomoses performed on the intestine of dogs. She worked in conjunction with Emile Holman, who describes the surgical technique in another article. In all, 25 dogs were used, the anastomoses being made in the small intestine, except in one instance, when the large intestine was used. When the anastomosis has been performed according to the technique adopted, the *mucosa* continues to functionate right up to the cut margin; there is, however, a great increase in the number of cells which secrete mucus, this functional change being converted to normal by the death of the mucous cells and by regeneration of the *mucosa*. The function of the villi up to the cut edges was tested by feeding a dog two days after operation with a large meal of meat, cream and potato. Five hours later it was killed and examined macroscopically and microscopically. The villi at the location of the anastomosis were found to be as active in absorbing fat as elsewhere. On the fourth day any gap is usually found to be covered by a layer of simple cubical epithelium. By the ninth day simple embryonic glands have formed. Villi are finally in evidence. Wherever the *muscularis mucosa* is cut or ruptured without undergoing infection, the glands of the *mucosa* invade the *submucosa* (often forming cysts), but these glands are subsequently restored to the *mucosa* by the regeneration of the *muscularis mucosa*, which forms a barrier for the glands. As regards the smooth muscle, histological examination shows that its cells are very sensitive to injury, and it is hardly possible to put a clamp on smooth muscle without producing some microscopic change. No dilatation of the intestinal wall was observed in any case of the series. The regeneration of the blood vessels is limited to specific areas where the growth of new vessels is preceded by a change in the endothelium of the old vessels, which may be characterized as a return of the endothelium to the original angio-blastic type. From these transformed vessels solid masses grow out, acquire a lumen, as in the embryo, through liquefaction of the cytoplasm, and become new vessels, first capillaries, then arteries and veins. The regeneration of blood vessels was investigated by means of injections of indian ink (diluted one half and made alkaline with a few drops of ammonia) into the superior mesenteric artery. The injected vessels were examined microscopically after sections had been made and cleared by the Spalteholz method. The vascular connexion between the two flaps was found to be partial on the fourth day and complete on the ninth day. Finally, the use of Halsted mattress sutures, Lambert sutures and Connell mattress stitches appeared both to the naked eye and microscopically less satisfactory than the technique described by Holman.

Emile Holman calls his method of end-to-end intestinal anastomosis, arrived at by experimental work, the "presection type." He first enunciates certain principles. In the first place, there must be an approximation of peritoneal or serous surfaces if a firm and permanent closure is desired (Lambert and Jobert, 1826). Secondly, the surgeon must include in his stitches a part of the *submucosa* or fibrous coat of the intestinal wall (Halsted, 1887). He should avoid soiling the field of operation by allowing the escape of intestinal contents or by handling the mucous coat of the bowel. Further, the blood supply in end-to-end union should be maintained intact as far as the edge of the divided intestine, and, finally, all unnecessary trauma in performing any intestinal surgery should be eliminated. The author discusses Cannon's radiographic findings, after giving a bismuth meal to cats on which various anastomoses had been performed. These seemed to show conclusively the physiological superiority of end-to-end, as opposed to lateral anastomosis. The presection method is described in detail and the following points may be noted. (1) All sutures are applied before incision of the bowel, regardless of the amount of bowel to be resected; hence the term "presection." The value of this is evident from the point of view of asepsis and from the standpoint of facility in introducing sutures before division of the intestine. (2) All sutures are inserted in such a way that the lumen is not entered and, as far as possible, the septic *mucosa* is not handled. (3) The sutures are applied at right angles to the lumen of the bowel and therefore parallel to the large vessels coursing through the bowel wall. Accordingly, none of the larger vessels are constricted when these sutures are tied and, as shown by injections, there is not the slightest impairment of the circulation to the severed ends of the various intestinal layers. The villi of the *mucosa* continue to functionate, even at the edge of the divided bowel. There was no evidence of sloughing of the intuned edges in a single specimen, ideal and rapid healing at the point of union having taken place. (4) In the entire series there was no evidence of dilatation proximal to the anastomosis, thus indicating the absence of any obstructive narrowing of the lumen of the bowel. (5) There is a minimum of trauma, whereas a considerable amount accompanies the use of mechanical devices, or the handling of the bowel edges with forceps, as in the plain end-to-end and Connell sutures, in all of which injury to the *mucosa* is unavoidable.

(54) Hypertrophy of Surviving Ovary After Semi-Spaying.

It has been noted, both in rabbits and in albino rats, that a compensatory hypertrophy of one ovary may occur when the other has been removed, but the cause and actual nature of this overgrowth have not been clearly defined. Hayato Arai (*Amer. Journ. Anat.*, November, 1920) has investigated the subject in the case of albino rats which

were operated on when twenty days old, since it had been shown previously that from twenty to sixty days of age the number of ova is almost constant. He states that this compensatory hypertrophy occurs independently of coitus or pregnancy and makes its appearance in three to five weeks after operation. Before puberty the weight of this surviving ovary is about 40% heavier than the normal and after puberty it is 100% or more above that in control rats. The number of ova in the excised ovary (20 days old) is about the same as in the remaining one, despite the fact that this latter hypertrophies greatly. But the number of ova in the surviving ovary is 12% less than that in the corresponding ovary of the control rats of the same age, although this surviving ovary is one and a half to two times as heavy as in the control rats. Thus, changes in the total number of contained ova do not cause the hypertrophy in the surviving ovary. It is more probably brought about by a greater abundance of well-developed normal and degenerate follicles, as well as by an excess of *corpora lutea*. This indicates an increased activity of the surviving ovary, due to some unknown stimulus. Semi-spayed females produce litters containing nearly as many young as those from the control rats. The time of the first ovulation in the surviving ovary is identical with that in the normal ovary, both occurring at like phases of body development. There is a slightly slower growth and maturing of the ovary in young female rats separated from the males as compared with those kept with the males.

(55) Islets of Langerhans.

S. Saguchi has undertaken an exhaustive research, based upon recent cytological methods, into the minute structure of the cells of the islets of Langerhans, their relation to the acinus cells of the pancreas and their functional significance (*Amer. Journ. of Anat.*, November, 1920). With regard to the latter part of his study, he discusses the many opinions extant and remarks that the islet is a tissue, the functional significance of which it is extremely difficult to determine. From its topographical and cytological behaviour it is impossible to conceive that it has no function or that there exists any connection between the islets and the nervous or lymphatic system. The protoplasm of the cell elements is too well differentiated to be regarded as an embryological remnant. These islet cells cannot be identified as a resting form of acinus cells, for they differ from the exhausted cells in their cytoplasmic structure. We are left, therefore, with the conception that the islet is an organ of internal secretion. A strong argument in favour of this is that the islet cells are at one or both ends in direct contact with distended blood capillaries. The special type of cells which form the principal elements of the islets and which are in close relation to the blood vessels contain lipid corpuscles and urano-argentophile apparatus which are to be regarded as specific secreted matter of the islets.

Medical Societies.

MELBOURNE PÆDIATRIC SOCIETY.

A clinical meeting of the Melbourne Pædiatric Society was held at the Children's Hospital on December 8, 1920, Dr. A. E. Rowden White, the President, in the chair.

Dr. A. Jeffreys Wood outlined the case of a boy aged 4 years, who had been admitted to the Children's Hospital in May, 1920, on account of broncho-pneumonia, complicating whooping cough. The lung affection had been present for three weeks. The child looked very ill, was very much wasted and his general appearance strongly suggested the existence of an empyema. No such condition was found, however, on exploration and the boy improved temporarily. One month after admission he appeared to relapse and physical signs indicative of broncho-pneumonia were detected at the base of the right lung. In July, 1920, the boy contracted nasal diphtheria and at the same time the physical signs of broncho-pneumonia were scattered extensively through the chest; he was very much reduced and altogether his condition was critical. The fever continued, with periods of remission, until August 25, 1920, when the temperature remained normal for a period of three weeks. Another period of fever then ensued and fresh signs were apparent at the base of the right lung.

With the subsidence of this recrudescence, the boy commenced to put on weight and he was sent to the convalescent cottage on October 25, where he continued to improve and eventually attained his present state of good health.

Dr. Wood drew attention to the very long period of illness in this boy. He exhibited temperature charts showing the prolonged pyrexia in hospital. Fever, with quiescent periods, had obtained for seven months. The case served as a warning against the error of diagnosing tuberculosis when the temperature in a child with broncho-pneumonia failed to come down at the end of seven or eight weeks.

It was to be remembered that pulmonary tuberculosis was rare in children; in the boy he had just shown the sputum had been examined repeatedly for tubercle bacilli with negative results and no reaction to the von Pirquet test was obtained.

Dr. Wood's second patient was a boy, aged 11, whom he had shown at a previous meeting of the Society held at the time the lad was in hospital with *encephalitis lethargica* (see *The Medical Journal of Australia*, June 12, 1920, page 564). The salient features of the illness were an onset with acute mania and rigidity, accompanied by clonic spasms of the abdominal muscles, which persisted for three weeks. After the violent onset, the boy became very drowsy and maintained a high temperature for several weeks. No cranial nerve palsies were noted and the only ocular sign was a persistent dilatation of the right pupil. During the illness the knee jerks were absent on both sides and at the present time the right knee jerk was very feeble as compared with that on the left side. The boy's mental condition was now good and he had received a good school report since the illness. He had no recollection of the early stages of his illness, but his memory for antecedent events was good and he could recall the later phases of his period in hospital.

Dr. Wood next asked attention for the case of a girl, aged 9 years, who had been affected with cardio-spasm. When she first came to the hospital the history was given that she had vomited persistently for five months; it appeared that the food was regurgitated immediately after swallowing. During the period September 7 to November 23 the girl's weight declined from 24.5 kilograms to 21.5 kilograms. While in hospital the child was very emotional and she continued to vomit after every meal as long as attention was paid to her. The plan of taking no notice whatever of the vomiting was then adopted and the girl soon began to retain her food and to put on weight.

Mr. W. Kent Hughes introduced for discussion the case of a girl, aged 7 years, who was admitted to hospital with extensive osteomyelitis of the right tibia. Mr. Kent Hughes had eventually performed the operation of complete excystation of the shaft of the tibia. The condition was of 14 days' standing at the time of the child's admission and pus evacuated at the first operation yielded a pure culture of *Staphylococcus aureus* (June 4, 1919). The girl was dis-

charged on September, 1919, but re-appeared in February, 1920, with multiple discharging sinuses.

Operations in March, 1920, and in May, 1920, were of a very radical nature and on the last occasion the head of the bone was found to be extensively involved. Ultimately the whole of the shaft of the tibia was removed, with the exception of the periosteum, and at the present time, seven months later, there was good restoration of the tibia. The child was now getting about on crutches. With the exception of a small area of skin which had broken down, the incisions were completely healed.

Mr. Kent Hughes said that he had had experience of a number of cases of osteomyelitis for which complete excystation of the bone had been performed and had been well impressed with the results. By a curious co-incidence, the brother of the child he had shown was affected with precisely the same condition; the boy had not done so well and furnished an example of the inefficiency of the less radical measures. In operating it was necessary to stop short of nothing but healthy bone; sclerosed bone must be removed, as it provided no healthy granulations and sooner or later separated as sequestra. Again, many sequestra not shown in a radiogram were revealed by a thorough operation. The head of the tibia gave rise to much anxiety on account of the proximity of the joint, but it was necessary for the operator to be thorough if he wished to eliminate the possibility of small sequestra separating at a later date.

Dr. H. Douglas Stephens commented on the rapidity of repair of the tibia in the case shown by Mr. Kent Hughes. He considered it remarkable that such an excellent tibia should be laid down in the few months that had elapsed since the operation. His own experience of diaphysectomy had not been so fortunate; he had generally found that repair proceeded very slowly. His procedure at present in dealing with osteomyelitis was not to remove the shaft of the bone in the acute phase or even a few months afterwards; he preferred to leave it to become a sequestrum for the involucrum. When the latter was well formed, he opened the involucrum and removed the sequestrum.

Mr. Kent Hughes next demonstrated a method of treatment of *talipes calcaneus*. The patient, aged 5 years, had been walking on her heel as the result of poliomyelitis affecting the muscles of the calf two years and 9 months before treatment of the talipes was instituted. Mr. Kent Hughes had put the limb in plaster in the equinovoid position, in order that the elevation of the heel might afford complete rest to the *tendo achillis*. Treatment had been in progress for three months and a demonstrable degree of power had returned in the *gastrocnemius* and *soleus*.

Mr. Kent Hughes stated that he had had considerable success with this method of treatment during the last five years. The case he had shown provided an example of what recovery would take place after poliomyelitis if the affected muscles were given complete rest. This little girl had been walking completely on the heel and her case was just the type in which tendon transplantation or excision of a wedge of the *os calcis* had been found so disappointing. Tendon transplantation too often gave a good aesthetic, but poor practical result.

Dr. H. Douglas Stephens was impressed with the excellent degree of recovery attained in so short a time. It was maintained by some authorities that all poliomyelitic paralyses were susceptible of some degree of recovery under postural treatment. He quoted an experience in which careful postural treatment was very disappointing and expressed the opinion that under such circumstances the only useful procedure was arthrodesis of the ankle-joint.

Dr. H. Douglas Stephens invited discussion regarding the treatment to be adopted in the case of a boy, aged 6½ years, who was the subject of spastic paraplegia. The boy, who was said to have had meningitis at the age of 5½ months, had never walked, although he was able to crawl about. The family history showed that there had been five other boys, all alive and well, two girls, who died at the age of one month and three years of convulsions and meningitis respectively and one still-born baby. The mother had had no miscarriages. The boy under discussion was very emotional and mentally backward. He exhibited well-marked spastic paralysis of the lower limbs attended by severe adductor spasm. A double plantar extensor reflex was as-

sociated with exaggerated tendon reflexes and pronounced clonus. In the upper limbs, the tendon reflexes were unduly active, but, although the movements were rather clumsy, there was no actual paralysis. Sensation was unimpaired.

No response to the Wassermann test was obtained with the blood serum. Dr. Stephens directed attention to a tendency to bowing of the back, associated with a slight lateral curvature of the spine and remarked that it was unusual to find spastic paralysis dating from birth affecting the lower limbs only. The condition was much more commonly a diplegia affecting upper and lower limbs than a paraplegia. With reference to treatment, Dr. Stephens pointed out that a choice lay between the several procedures of tenotomy, myotomy, neurectomy and division of the posterior nerve roots (Förster's operation). The results of the last mentioned appeared reasonably good in over 50% of the cases. He thought that the condition he had shown justified the performance of Förster's operation. He recollected an instance in which this operation was followed by kyphosis at the site of the removed laminae, but this would seem to be an unusual sequela, in that it was not mentioned by Förster or by Fraser in a review of the results of the operation.

Mr. Balcombe Quick concurred in the opinion that, in view of the fact that the spasm was so general and of such a degree of severity, the Förster operation was the only procedure likely to give relief. It was to be remembered, however, that the operative mortality was approximately 20%; he had not seen kyphosis supervene on the operation.

Mr. W. Kent Hughes suggested that a trial be made with muscle stretching and tenotomy before the more severe operation be adopted. He was not at all sanguine that any of the measures mentioned would benefit the child materially. Partial neurectomy was now in disuse and the Förster operation was less practised than formerly. He had seen instances in which division of the posterior roots led to an apparently good immediate result, but he was not impressed with the ultimate course of such cases.

Dr. Stephen's second patient, a girl aged 7½ years, furnished an example of "mega-colon" or Hirschsprung's disease. The child was admitted to hospital on account of constipation and vague abdominal pain. She required an enema every second night and for four months had been subject to "turns," which were of the nature of *petit mal*. It was said that the child had not had a motion without an enema since birth. There was nothing suggestive in the child's past and family history and there were no conspicuous irregularities in the dietetic history. On physical examination the girl was observed to be somewhat emaciated; the abdomen was distended, especially in the pelvic portion and large peristaltic waves were evident. The liver dulness was almost obliterated. By digital examination the rectum was found to be dilated and by rectal injection 2.4 litres were accommodated in the colon without discomfort. A radiographic screen examination following a bismuth enema showed a huge dilatation of the pelvic colon. A week later a further screen examination disclosed a considerable amount of bismuth still present in the pelvic colon, with a few streaks in the descending colon. A skiagram taken after a bismuth meal indicated that the stomach was dilated and pushed over to the right, although the viscus emptied well.

Dr. Stephens remarked that in view of the intractable constipation and the miserable existence the child was leading, he had taken into consideration the advisability of removing the colon.

Dr. M. D. Silberberg exhibited a child, aged 2½ years, the subject of rickets with advanced bony changes. She had been breast fed for 18 months, with supplementary custard and since that period appeared to have been given an ordinary mixed diet. As a baby of eight months of age, the girl had been brought to the Out-patient Department on account of hemi-hypertrophy, affecting the right side of the face, the right arm and right leg. She reappeared in September, 1920, on which occasion the signs of protuberant abdomen, bulging of the posterior angles of the ribs, beaded ribs, forward bowing of the tibiae and *genu valgum* were very apparent. The left arm and leg and the left side of the face were very much bigger than the right. The child was intelligent and spoke well. Her blood serum failed to react to the Wassermann test.

Dr. Silberberg exhibited X-ray plates and demonstrated epiphyseal thickenings. He mentioned as probably of significance in connexion with rickets that the child was partly of Syrian extraction. Since September of this year she had been receiving thyroid extract, calcium and anti-rachitic treatment.

In the discussion on the case shown by Dr. Silberberg, Dr. H. Douglas Stephens suggested that the child might be an instance of a type of achondroplasia. He recollected two cases recorded in the literature in which one and two limbs respectively were achondroplastic. In the case under discussion he thought that the epiphyses as seen in the skiagram were of the "mushroom" type seen in achondroplasia. He noted that the child had some degree of scoliosis, as was the case with many achondroplastics. In addition, the disparity in size of the two sides of the body had been noted since three months of age. Altogether, he thought that achondroplasia merited consideration in relation to this case. He would like to see a skiagram of the pituitary fossa.

Mr. W. Kent Hughes shared the opinion expressed by Dr. Stephens that the changes in the epiphyses were not typically rachitic.

Mr. C. W. B. Littlejohn's patient was a boy, aged 3½ years, whom he had shown at a former meeting of the Society. On that occasion the child presented a swelling in the region of the first metatarsal bone of the left foot. The swelling had been present for two weeks, when he was admitted to the hospital on July 30, 1920. The boy's blood serum failed to react to the Wassermann test, but a strongly positive von Pirquet cutaneous tuberculin reaction was obtained. The skiagram revealed extensive periosteal thickening of the first metatarsal. This in particular had led Mr. Littlejohn to regard the condition as syphilitic. The existence of a point of tenderness and slight fluctuation had influenced various members present at the former meeting to consider that the lesion was of a chronic septic nature and to advocate incision.

The boy was admitted to hospital on August 17, 1920, and an exploratory needle was inserted over the point of fluctuation. The pus withdrawn was reported as containing no organisms in smear preparations and as sterile in culture. A few days later the abscess broke down and discharged spontaneously. On August 31 the sinus was excised and a sequestrum removed, the wound being treated with bismuth-iodoform-paraffin paste. Healing was very slow, although there was very little discharge from the wound.

The boy was sent to the Convalescent Cottage, but returned on November 1 with enlarged glands in the right posterior triangle of the neck. The affected glands were not tender and displayed a decided tendency to fuse together. No focus of infection was observed in the throat. The wound in the foot was again curetted and the bismuth-iodoform-paraffin paste treatment repeated. On November 22 the boy was again brought back from the Convalescent Cottage with fluctuant femoral adenitis, which in the course of a few days, broke down.

Mr. Littlejohn added that the child reacted positively to an injection of old tuberculin and that, although there was a family history of tuberculosis on the father's side, the other children were all healthy. The symmetrical laying down of bone shown in the skiagram was at the outset extremely suggestive of syphilis, but from the subsequent course he could only conclude that the sequence of lesions was tuberculous.

Mr. Balcombe Quick contributed some remarks relative to skiagraphic appearances in tuberculous bone disease as illustrated in two cases of tuberculous caries of the spine which had recently been under his observation. In both cases a psoas abscess developed and in both the radiograms showed a good deal of new bone formation, in contradistinction to the rarefaction which usually characterized a tuberculous process. The pus from one of the psoas abscesses had led to the death of a guinea-pig from tuberculosis. A very experienced radiographer had previously expressed the opinion that the skiagraphic picture was not that of tuberculosis, but rather that of chronic sepsis.

Dr. A. P. Derham introduced a girl, aged 11½ years, who was the only surviving child of a family of ten. She was the subject of frequent fits, as had been each of the nine

deceased brothers and sisters. The girl had been a patient at the Children's Hospital for various causes on numerous occasions since infancy. She first attended for the present trouble at the age of four years and again at the age of nine, when her record showed that the condition had been regarded as choreic. In the seizures she fell down suddenly, twitched all over, remained conscious and could answer questions, but seemed unable to control the attack. The mother's description suggested a Jacksonian fit, commencing in the left hand. After recovery an arm or leg or both remained limp and twitching often for an hour or longer. She did not bite her tongue nor pass urine or faeces during the attack, but the mother stated that she hurt herself when she was not watched. The child appeared to experience a definite aura, consisting of a sense of tiredness and inability to walk for a variable time before the onset of the fit. She was five years old when the first definite fit occurred, but, according to the mother, she used to have fits of transient unconsciousness as a baby. Her bowels were regular and the appetite was capricious. Her mentality was good; she was fond of school and did very well in her school work. At the age of nine years she menstruated regularly for five months, after which the periods ceased.

Recently the child's tonsils and adenoids had been removed and her teeth had received attention. She had been treated for a vaginal discharge, in which no gonococci could be found; a number of thread worms and one round worm had been evacuated. The blood of both mother and child had been subjected to the Wassermann test, with a negative result.

Dr. Derham gave minute details of the girl's family history and of the physical examination, in which he had noted increased resistance over the course of the large bowel and tenderness in the left hypochondrium.

He thought that the facts that all the other children were subject to fits and that so many died with convulsions, together with the consideration that this girl's fits started in infancy, pointed to an organic, rather than a functional, basis. If an organic cause were operating, its nature and treatment were very perplexing.

Dr. Reginald Webster exhibited a film in which the characteristic organisms of Vincent's angina, *Bacillus fusiformis* and associated spirochetes, were unusually well demonstrated.

THE PUBLIC HEALTH ASSOCIATION OF AUSTRALASIA.

At the close of the last session of the Section on Public Health and State Medicine of the Australasian Medical Congress, held in Brisbane in August, 1920, those present formed themselves into a committee and decided that a public health association should be formed and should include persons in Australasia interested in the various branches of public health. A sub-committee was appointed to draw up the initial organization and to report to the Committee during the meeting of the Australasian Association for the Advancement of Science in January, 1921. The sub-committee consisted of the following:

Miss F. Bage, Principal, Women's College, Brisbane; Miss I. L. Neilsen, School Nurse, State Department of Public Instruction, Brisbane; Dr. J. S. C. Elkington, Chief Quarantine Officer (General), North-Eastern Division, Brisbane; Mr. J. Brownlie Henderson, State Analyst, Brisbane; Dr. T. A. Price, President, Queensland Town Planning Association; Mr. R. A. Fraser, City Inspector, Brisbane; Dr. W. A. Sawyer (Chairman), Director, Australian Hookworm Campaign, Brisbane.

The Committee met again in Melbourne on January 14, 1921, at the close of the last session of the Section on Sanitary Science and Hygiene of the Australasian Association for the Advancement of Science. Dr. J. H. L. Cumpston, the Chairman of the Committee, presided.

The report of the sub-committee on the formation of an Australasian Public Health Association was presented by the Chairman. A proposed constitution and by-laws were recommended for adoption. It was suggested that the Association be organized into sections, as soon as the membership was large enough and that provision be made for affiliated societies. It was recommended, however, that

membership in an affiliated society should not be made a prerequisite to membership in the Association.

The Committee thereupon adopted a motion declaring the Association to be formed. It was then decided that the name should be the Public Health Association of Australasia. The proposed constitution and by-laws, as presented by the sub-committee, were considered, amended and adopted.

After the adoption of the constitution and by-laws, the Association elected the following as members of the Federal Council: Dr. W. G. Armstrong, Dr. H. W. Armit, Dr. J. S. Purdy, Dr. Harvey Sutton, Dr. J. H. L. Cumpston, Dr. Jean Greig, Mr. Charles Norris, Professor Georgina Sweet, Dr. Gertrude Halley, Dr. Frank S. Hone, Miss Freda Bage, Dr. J. S. C. Elkington, Dr. E. S. Morris, Dr. Everitt Atkinson, Dr. M. H. Watt.

The following were elected as a list from which the Federal Council was authorized to fill any vacancies in its membership prior to the next meeting of the Association: Mr. J. B. Henderson, Dr. W. M. Strong, Sir James Barrett, Mr. G. H. Knibbs, Dr. Vera Scantlebury, Mr. R. A. Fraser, Dr. E. W. Ferguson, Dr. T. H. A. Vakintine, Dr. T. A. Price, Mr. A. E. Wadsworth, Professor N. T. Willmore, Mrs. H. Brydon, Mr. C. A. Elliott, Dr. F. E. Cox, Dr. Gregory Sprott, Dr. D. G. Robertson, Dr. A. H. Clarke.

A motion was carried instructing the Federal Council to consider the advisability of incorporating the Association.

A meeting of the Federal Council was called, to follow immediately after the close of the meeting of the Association, which then adjourned.

Meeting of the Federal Council.

At the meeting of the Federal Council the following officers and executive committee were elected:

President: Dr. J. H. L. Cumpston.

Secretary: Dr. Jean Greig.

Treasurer: Mr. Charles Norris.

First Vice-President: Dr. W. G. Armstrong.

Second Vice-President: Mr. J. Brownlie Henderson.

Third Vice-President: Dr. Everitt Atkinson.

Executive Committee: The President, Secretary and Treasurer, *ex officio*, and the following: Professor Georgina Sweet, Dr. W. J. Penfold, Dr. F. S. Hone, Dr. E. Robertson, Professor H. A. Woodruff, Mr. A. E. Wadsworth.

Dr. Victor G. Heiser, Director for the East of the International Health Board, Rockefeller Foundation, was elected Honorary Member.

The Council decided to leave to the Executive Committee the consideration of any other matters within the province of the Council and connected with the initial organization of the Association, which might need attention before the next meeting.

The undermentioned have been nominated for election as members of the New South Wales Branch of the British Medical Association:

Francis John Gwynne, Esq., M.B., Ch.M., 1920 (Univ. Sydney), 265 Elizabeth Street, Sydney.

John Rogers Broome, Esq., M.B., Ch.M., 1920 (Univ. Sydney), Cronulla.

Correspondence.

PARANOIA AND OCCULTISM.

Sir: With Dr. Nisbet, in his letter to your *Journal* of January 8, 1921, I am in entire agreement, and must express my surprise at the lamentable want of fairness as exhibited in your leader of November 27, 1920, under the heading of "Paranoia and Occultism." Had such an article appeared in the columns of our "dailies," for obvious reasons there would not have been the same grounds for surprise. But that a medical journal, whose *raison d'être* is to deal with man, not only in his physical relations, but also in his (not less important) spiritual relations, should stigmatize as paranoics, by inference, all those engaged in psychical research, is past comprehension.

One is almost compelled to the conclusion that the writer is not at all acquainted with "the proceedings of the Psychical Research Society and the galaxy of scientists and literateurs that belong to it."

I must confess to an entire absence personally of any psychic or occult experiences, but when men of the calibre of Sir William Barrett, F.R.S., Sir William Crooks, Sir Oliver Lodge and hosts of others of equal distinction, think the matter worthy of their most serious consideration, after careful research extending over 30 or 40 years, the correct attitude surely is that of the open mind. The materialism of Haeckel is fast passing away and the sign of the times is the greater prominence now given to the other side of man. And is this side to be sacrosanct, that the hands of the scientist must not deal with it? A great deal of water has passed under the bridge since the days of Galileo and opinions can now be held without fear of the Inquisition, even though to some they may appear to be irrational.

And perhaps of all that has been said and written about the effects of the great war, the most potent will be the realization, by patient and physician alike, that there is another side of man, not less important than the material. *Magna est veritas et prevalebit.*

Yours, etc.,

F. MORETON, M.R.C.S., L.R.C.P.

Geelong, January 22, 1921.

A LAY ARTICLE ON UROLOGY.

Sir: So much annoyance has been occasioned me arising from an article on urology, which appeared in the *Sunday Sun* of January 23, 1921, that I should be glad if you would afford me this opportunity of stating for the information of your readers that the subject matter was not supplied by me, nor was I in any way, directly or indirectly, responsible for the publication thereof.

Yours, etc.,

S. HARRY HARRIS.

"Beanbah," 235 Macquarie Street, Sydney,
January 25, 1921.

DRAMATIC SURGERY.

Sir: I have read a review (*sic*) of Doyen's "Surgical Therapeutics and Operative Technique," and I am simply amazed that any man calling himself a surgeon could have written such utter drivel. I have devoted months to the perusal of Doyen's work, which I read years ago in its French form; and as I had the privilege of attending Doyen's clinic in Paris, I cannot let a great master's work pass with the ridiculous slur that your reviewer has cast upon it.

The first impression that comes to one after reading Doyen's great work is that he knows new ways of doing the most common operation, for everything he does is original; everything bears the imprint of experience; and, though his method may be different to the one that the reader has been used to, that is no reason for brushing it aside. We should always study what a great master of technique advises, for he has learnt from a huge experience what is best. Doyen was a splendid mechanic, and he was able to make his own instruments; he also made a special study of the leverage of the arms of each instrument and the temper of the steel of which it was made; and what was the result? Doyen is probably the only modern surgeon who had sufficient mechanical skill to construct his own instruments, and sufficient genius to bring to perfection the most common instrument of the surgeon—the forceps.

It is quite true that his fellow surgeons called him an advertising charlatan; but this has nothing to do with his book, and in the book he has given us with great care the results of his life work.

I have recently in writing a chapter in my work on the "Life of Lawson Tait," said that I believe that Doyen was the most expert surgeon that ever lived. Liston when he first used ether for an amputation of the leg did his work in twenty-four seconds; August Martin I have watched day after day in Berlin when he would remove a pyosalpinx and complete the section in eight minutes; Tait would finish a section so rapidly that his time was unbelievable. William Mayo I have seen remove a malignant stomach in thirty-five minutes. But Doyen! He made all these experts look

novices, for he could do eight abdominal hysterectomies in one morning; and he performed a vaginal hysterectomy in two minutes! And yet to read your reviewer's account of his work one would think that this great master was an amateur from "away back," instead of being the author of the most wonderful contribution to surgical technique ever published.

Your reviewer writes about the "Alexander operation" in these words: "Doyen's description of Alexander's operation simply makes one shudder." Doyen's description of Alexander's operation is so perfect that I think that the great surgeon must have read my own way of doing it! and my description was founded on five hundred operations. The only thing that I object to is that he used silk to fix the round ligament to the "great oblique"; silk used in such cases may sometimes cause irritation in the most perfect wound months afterwards. I think that if your reviewer had the smallest spark of surgical instinct in his composition that he could never have written this notice of a great surgical work; perhaps your reviewer went away for a holiday and asked the printer's devil to do his work for him in his absence!

Yours, etc.,

W. J. STEWART MCKAY.

January 26, 1921.

[Dr. Stewart McKay, like everyone else, is at liberty to hold and to express an opinion on operative surgery or on any other subject. He is, however, not likely to discover many who will share his admiration for Doyen. This surgeon's professional behaviour so nauseated the medical profession in France and in Europe generally that the question whether he should be allowed to take part in the International Medical Congress at Lisbon in 1906 was seriously discussed by the Executive. Doyen's operative skill was extraordinary, but we can conceive no more dangerous or undesirable an example than a master who sacrifices everything to speed. Competent critics expressed the opinion freely that, while they marvelled at the lightning-like dexterity displayed, they would not trust their own relatives to so daring a surgeon.

In regard to the Alexander-Adams operation, we were unaware that our correspondent was the acknowledged exponent of this procedure. The final insult to both the reviewer and those in charge of this *Journal* is not worthy of any rejoinder.—Ed.]

FRIENDLY SOCIETY LODGE PRACTICE.

Sir: The stimulus which has urged me to make use of the Briton's privilege—to rush into print when aggrieved—was a paragraph appearing in a recent number of the *Journal*. I cannot lay my hands upon the number in question, it having been placed on one side for reference and safe keeping!

The paragraph, as I remember it, stated that arrangements were being or had been made by the New South Wales Council to obtain from friendly societies' members an increased payment *per capita per annum*. As an offset was allowed an increase in the income limit. The reason given was the ubiquitous high cost of living. It is a most desirable thing to raise the contributions of friendly societies' members. All lodge medical officers will agree to that. It is within our memory that great trials and tribulations were suffered by lodge medical officers in every State in the Commonwealth, consequent upon the enforcing of the Model Lodge Agreement. I think that it will be conceded by every doctor so involved that nine-tenths of their worry would have been obviated had there been any sort of co-operation and organized action throughout the Commonwealth. One State enforced the agreement, with weeping and wailing and gnashing of teeth from some of its members, while the other States looked on and marvelled that here and there one of their brethren "slipped." In turn they suffered in proportion to the amount of organization work done by the Association.

History is repeating itself, and we may look forward to a procession of the States, each waiting to see how the other fellow gets on before it takes the plunge. Why do we, as a profession, act the part of the ostrich? Why haven't we the courage of our convictions where our pockets

are concerned? We feel ourselves entitled to an increase in fees for reasons which appear sufficiently good to us and we actually go on strike to obtain that increase, though nothing would ever make us admit that fact. We adopt half-heartedly some of the methods of the trades unionist, but apparently nothing—not even the last dispute—will make us adopt them all. It seems to me that this is a fair matter for action by our Federal Council, inasmuch as it affects every lodge practitioner in the Commonwealth. If the Federal Council were notified by all the State Councils that an increase in fees was imperative, cannot the Federal Council give instructions that by a certain date each State Council shall have completed its new agreement? If it can do this, why doesn't it get busy? It becomes almost ridiculous for isolated groups of practitioners to endeavour to enforce new regulations. We in Warwick were the first to introduce the Model Lodge Agreement outside the metropolis, but it took us fifteen months of solid war to do it. Supposing we feel the need of increased fees and say to the lodge officials: "After a certain date you'll please pay 32s. *per annum* instead of 26s." The obvious and natural reply would be: "Why do the Warwick doctors want an increase when nobody else in Australia asks for it—except in New South Wales?" Whereas, if the Federal Council says: "Get your agreements signed at 32s. by March 31 next," passes that on to the State Councils, it would not require much negotiation for the State Council to arrange the matter direct with the "head boss" of the lodges in each State. The result is that by the 31st March, throughout Australia, everyone has to pay his 32s. or find someone else. The thing becomes simple. Perhaps some of your readers who are interested in lodge matters would be able to make out a better case for centralized control than I have done. Should the Federal Council be debarred by its constitution from dealing with the matter, conversations between the State Councils would arrive at a similar arrangement.

Apologising for my long windedness,

Yours, etc.,

JOHN S. SMYTH, M.B. CH.M.

Warwick, Queensland,
January 27, 1921.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xxv.
Royal North Shore Hospital of Sydney: (i.) Honorary Junior Assistant Surgeon. (ii.) Honorary Assistant Anaesthetist.

Croydon District Hospital, North Queensland: Medical Officer.

Pelaw Main, Richmond Main and Stanford Merthyr Collieries, New South Wales: Medical Officer.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phoenix Mutual Provident Society.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Institutes or Medical Dispensaries. Manchester Unity Independent Order of Oddfellows. Ancient Order of Foresters. Hibernian Australian Catholic Benefit Society. Grand United Order of Free Gardeners. Sons of Temperance. Order of St. Andrew. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Australian Natives' Association. Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIA. (Hon. Sec., 6 Bank of New South Wales Chambers, St. George's Terrace, Perth.)	All Contract Practice Appointments in Western Australia.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

- Feb. 8.—N.S.W. Branch, B.M.A., Ethics Committee.
Feb. 10.—Vic. Branch, B.M.A., Council.
Feb. 11.—Tas. Branch, B.M.A., Annual General Meeting.
Feb. 11.—Q. Branch, B.M.A., Council.
Feb. 11.—S. Aust. Branch, B.M.A., Council.
Feb. 15.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
Feb. 15.—Illawarra Suburbs Med. Assoc. (N.S.W.), St. George District Hospital.
Feb. 18.—Eastern Suburbs Med. Assoc., Annual (N.S.W.).
Feb. 22.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
Feb. 23.—Vic. Branch, B.M.A., Council.
Feb. 24.—S. Aust. Branch, B.M.A., Council.
Feb. 25.—Q. Branch, B.M.A., Council.
Feb. 25.—Central Southern Med. Assoc. (N.S.W.) Annual Meeting, Goulburn.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned.
Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.
All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building 30-34 Elizabeth Street, Sydney. (Telephone: B. 4435.)